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TECHNICAL SUPPORT FOR

ROCKY MOUNTAIN ARSENAL

Rocky Mountain Arsenal
Information Center
Commerce City, Colorado

FINAL
REMEDIAL INVESTIGATION REPORT
VOLUME VI
SOUTHERN STUDY AREA, TABLES
VERSION 3.3

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June 1989
Contract Number DAAA15-88-D-0024

PREPARED BY

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U.S. ARMY PROGRAM MANAGER'S OFFICE FOR
ROCKY MOUNTAIN ARSENAL CONTAMINATION CLEANUP

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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 06/00/89		3. REPORT TYPE AND DATES COVERED
4. TITLE AND SUBTITLE REMEDIATION INVESTIGATION REPORT, VOLUME VI, SOUTHERN STUDY AREA, FINAL, VERSION 3.3			5. FUNDING NUMBERS	
6. AUTHOR(S)			DAAA15 88 D 0024	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) EBASCO SERVICES, INC. LAKEWOOD, CO			8. PERFORMING ORGANIZATION REPORT NUMBER 89166R01	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) ROCKY MOUNTAIN ARSENAL (CO.). PMRMA COMMERCE CITY, CO			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) <p>THE SOUTHERN STUDY AREA (SSA) REPORT INTEGRATES THE STUDY AREA HISTORY, GEOLOGY, AND HYDROLOGY WITH THE RESULTS OF SOIL, SURFACE WATER, GROUND WATER, AIR, BIOTA, AND STRUCTURES INVESTIGATIONS TO DEFINE THE NATURE AND EXTENT OF CONTAMINATION IN THE SOUTHERN PORTION OF RMA.</p> <p>THE SSA INCLUDES ALL OF SECTIONS 11 AND 12 AND PORTIONS OF SECTIONS 1, 2, 3, AND 7. HISTORIC REPORTS INDICATE THAT THE SSA WAS NOT USED FOR THE PRODUCTION OF AGENTS OR PESTICIDES, BUT WAS A DISPOSAL AREA AND BUFFER ZONE. 904 SOIL SAMPLES WERE ANALYZED AS WERE SURFACE WATER SAMPLES AND GROUND WATER SAMPLES FROM NUMEROUS WELLS. ORGANOCHLORINE PESTICIDES AND HG ARE THE MOST COMMONLY DETECTED CONTAMINANTS. THE VOLUME OF POTENTIALLY CONTAMINATED SOIL IS ESTIMATED AT 1.51 MILLION CUBIC YARDS.</p> <p>THIS REPORT IS PRESENTED IN THREE SECTIONS:</p> <p>1. CHARACTERIZATION OF THE STUDY AREA - GEOLOGY, HYDROLOGY, CLIMATE, HISTORY</p>				
14. SUBJECT TERMS SOIL, GROUNDWATER, SURFACE WATER, AIR, CONTAMINANTS, BIOTA, ANALYTES DISTRIBUTION			15. NUMBER OF PAGES	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

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STANDARD ABBREVIATIONS USED IN SOUTHERN STUDY AREA REPORT

1. Analyte Groups

VHO	Volatile halogenated organic compounds
VHC	Volatile hydrocarbon compounds
VAO	Volatile aromatic organic compounds
OSCM	Organosulfur compounds - mustard-agent related
OSCH	Organosulfur compounds - herbicide related
OPHGB	Organophosphorous compounds, GB-agent related
OPHP	Organophosphorous compounds, pesticide related
DBCP	Dibromochloropropane
ONC	Organonitrogen compounds
PAH	Polynuclear aromatic hydrocarbons
SHO	Semivolatile halogenated organic compounds
OCP	Organochlorine pesticides
ICP METALS	Metals analyzed for by inductively coupled argon plasma, includes cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), and zinc (Zn)
As	Arsenic
Hg	Mercury

2. National Acts & Organizations

AMCCOM	Armament, Munitions, and Chemical Command
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CWS	Chemical Warfare Service
DOJ	Department of Justice
DOD	Department of Defense
FDA	Food & Drug Administration
NCP	National Contingency Plan
NIOSH	National Institute of Occupational Health and Safety
SARA	Superfund Amendments and Reauthorization Act
USACOE	United States Army Corps of Engineers
USAEWES	United States Army Engineer Waterways Experiment Station
USATHAMA	United States Army Toxic and Hazardous Materials Agency
USDA-SCS	United States Department of Agriculture - Soil Conservation Service
USEPA	U.S. Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

STANDARD ABBREVIATIONS USED IN SOUTHERN STUDY AREA REPORT
(continued)

3. Local Terminology

BIM	Basic Information Maps
BCF	Bioconcentration Factors
BCRL	Below Certified Reporting Limit
CAR	Contamination Assessment Report
CDH	Colorado Department of Health
CDOW	Colorado Division of Wildlife
CRL	Certified Reporting Limits
EA	Endangerment Assessment
EC	Electrical Conductivity
ESA	Eastern Study Area
FS	Feasibility Study
PMCDIR	Program Manager for Chemical Demilitarization Installation Restoration
PMO or PMRMA	Program Managers Office for the RMA Contamination Cleanup
PWRS	Process Water Return System
RAA	Remedial Action Alternative
RI	Remedial Investigation
RIC	Resource Information Center
RMA	Rocky Mountain Arsenal
RMACCPMT	Rocky Mountain Arsenal Contamination Cleanup Program Managers Team
SAR	Study Area Report
SPF	Standard Project Flood
SPSA	South Plants Study Area
SSA	Southern Study Area
TPP	Technical Program Plan
TSP	Total Suspended Particulates
WSA	Western Study Area

4. Companies

EBASCO	Ebasco Services Incorporated
ESE	Hunter/Environmental Science & Engineering, Inc.
G&M	Geraghty & Miller, Inc.
MKE	Morrison-Knudsen Engineers, Inc.
WRS	Whitman, Requardt & Smith

5. Unified Soil Classification System (USCS) Textural Key

CL	inorganic clay, low plasticity
GC	clayey gravel
GP	poorly graded gravel
ML	inorganic silt, low plasticity
SC	clayey sand
SM	silty sand
SP	poorly graded sand
SW	well graded sand

STANDARD ABBREVIATIONS USED IN SOUTHERN STUDY AREA REPORT
(continued)

6. Measurements

ac ft/mo	acre-foot per month
cm/yr	centimeters per year
f/cc	fibers per cubic centimeter
gpd/ft	gallons per day per foot
mg/kg	milligrams per kilogram, equivalent to parts per million
mg/l	milligrams per liter
msl	mean sea level
ppb	parts per billion
ppm	parts per million
ug/g	micrograms per gram, equivalent to parts per million
ug/l	micrograms per liter, nearly equivalent to parts per billion
umhos/cm	micromhos per centimeter
AA	Atomic Absorption
CVAA	Cold Vapor Atomic Absorption
Eh	Oxidation Potential
f _{oc}	Soil-organic carbon content
GC/EC	Gas chromatography/Electron capture
GC/MS	Gas chromatography - mass spectrography
IL	Indicator Level
K _d	soil-water partition coefficient
K _h	Henry's Law Constant
K _{oc}	organic carbon partition coefficient
K _{ow}	octanol-water partition coefficient
NTU	Nephelometric Turbidity Units
TSP	Total Suspended Particulates

TARGET LIST OF CHEMICAL ANALYTE GROUPS AND ANALYTES

1) Volatile Halogenated Organics (VHOs)

Methylene Chloride

Chloroform

Carbon Tetrachloride

1,1-Dichloroethane

1,2-Dichloroethane

1,1,1-Trichloroethane

1,1,2-Trichloroethane

1,1,2,2-Tetrachloroethane*

1,1-Dichloroethylene

1,2-Dichloroethylene

Trichloroethylene

Tetrachloroethylene

Chlorobenzene

Trichloropropene*

2) Volatile Hydrocarbons (VHCs)

Dicyclopentadiene

Bicycloheptadiene

1-Methyl-1,3-cyclopentadiene*

Methylcyclohexane*

Methylisobutyl Ketone

4-Hydroxy-4-methyl-2-pentanone*

2-Pentanone*

2-Butoxyethanol*

2,2-Oxybisethanol*

3) Volatile Aromatic Organic Compounds (VAOs)

Benzene

Toluene

m-Xylene

o- and p-Xylene

Ethylbenzene

4) Organosulfur Compounds, Mustard-Agent Related (OSCMs)

1,4-Oxathiane

Dithiane

Thiodiglycol

Chloroacetic Acid

*Formerly a significant nontarget compound

TARGET LIST OF CHEMICAL ANALYTE GROUPS AND ANALYTES
(continued)

- 5) Organosulfur Compounds, Herbicide Related (OSCHs)
- Chlorophenylmethyl sulfide
 - Chlorophenylmethyl sulfone
 - Chlorophenylmethyl sulfoxide
 - Dimethyl disulfide
 - Benzothiazole
- 6) Organophosphorous Compounds, GB-Agent Related (OPHGBs)
- Diisopropylmethyl phosphonate
 - Dimethylmethyl phosphonate
 - Phosphoric acid, tributyl ester*
 - Phosphoric acid, triphenyl ester*
 - Isopropylmethylphosphonic acid
 - Methylphosphonic acid
- 7) Organophosphorous Compounds, Herbicide Related (OPHPs)
- Atrazine
 - Malathion
 - Parathion
 - Supona
 - Vapona
- 8) Dibromochloropropane (DBCP)
- 9) Organonitrogen Compounds (ONCs)
- Nitrosodimethylamine
 - Nitrosodi-n-propylamine
 - Hydrazine
 - Methylhydrazine
 - Unsymmetrical dimethylhydrazine
 - Caprolactam*
- 10) Fluoroacetic Acid
- 11) Polynuclear Aromatic Hydrocarbons (PAHs)
- Fluoranthene*
 - Methylnaphthalene*
 - Phenanthrene*
 - Pyrene*

* Formerly a significant nontarget compound

TARGET LIST OF CHEMICAL ANALYTE GROUPS AND ANALYTES
(continued)

12) Semivolatile Halogenated Organic Compounds (SHOs)

Trichlorobenzene*
Hexachlorobenzene*
Hexachlorobutadiene*
Hexachlorocyclopentadiene
Pentachlorobenzene*
Tetrachlorobenzene*

13) Organochlorine Pesticides (OCPs)

Aldrin
Dieldrin
Endrin
Isodrin
Dichlorodiphenylethane
Dichlorodiphenyltrichloroethane
Chlordane

14) Arsenic

15) Mercury

16) ICP Metals (ICPs)

Cadmium
Chromium
Copper
Lead
Zinc

*Formerly a significant nontarget compound

<u>Report</u>	<u>Volume</u>
Overview of RMA Remedial Investigations and Study Area Reports	I
Water Remedial Investigation Report	II
Air Remedial Investigation Report	III
Biota Remedial Investigation Report	IV
Summary of Results Structures Survey Report	V
Structure Profiles Structures Survey Report	
Databases Structures Survey Report	
Southern Study Area Report	VI
Eastern Study Area Report	VII
South Plants Study Area Report	VIII
North Plants Study Area Report	IX
Central Study Area Report	X
North Central Study Area Report	XI
Western Study Area Report	XII

PRIOR INVESTIGATIONS

SCOPE OF WORK

REFERENCE

Julius Hyman Co.

In response to reports of wildlife mortality in or near lakes region, J. Hyman Co. collected process and lake waters and analyzed for organic compounds.

Hyman, J. and Co. 1952
Hyman, J. and Co. 1953
SOC095: 1457

Shell Oil Company

Performed lab analyses on RMA lake "scum" and mud samples from Lakes Ladora, Mary and Derby lakes from 1957 to 1981.

Shell Chemical Co. 1957
SOC033: 1622
Shell Chemical Co. 1964
1964 (SOC033: 1622 - 1623)
1964 (SOC033: 1618 - 1620)
1964 (SOC031: 1261 - 1263)
1973 (SOC148: 0761 - 0766)
1973 (SOC134: 1426 - 1432)
1974 (5/3/74 memo)
1981 (Lab Analyses 9/8 - 10/20/81)

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA)

360° Monitoring Program - a surveillance program initiated in 1975 to monitor both surface and groundwater to satisfy the requirements of the Cease and Desist Order issued by the State of Colorado.

USATHAMA Database

Geraghty and Miller

Reviewed and evaluated known and suspected potentially contaminated sites; classified sites into one of three categories based upon migratory potential across arsenal boundaries. Investigations included collection of 143 soil samples and 20 water samples to assess nature and extent of contamination in support of program objectives.

RIC 81342R06
(September, 1982)

<u>PRIOR INVESTIGATIONS</u>	<u>SCOPE OF WORK</u>	<u>REFERENCE</u>
U.S. Army Engineer Waterways Experiment Station (USAEWES)	A two-phased study to determine the horizontal and vertical extent of contamination in sediments of Derby Lakes, Rod and Gun Club Pond, and connecting canals and ditches. Phase I was conducted to confirm the presence of organochlorine pesticides and mercury in lake sediments (24 sample sites). Phase II investigation analyzed for same analytes and was conducted over 96 sampling sites, which included some of the same sites sampled in Phase I.	RIC 84086R01 (June, 1983)
U.S. Army Engineer Waterways Experiment Station (USAEWES)	To assess the vertical and horizontal extent of contamination in lake sediments in Lakes Ladora and Mary. Program objectives included 1) three-dimensional mapping of contaminants in sediments 2) identify clean and contaminated zones in sediments, and 3) minimize costs to identify contaminated sediments at 50 sample locations, yielding 145 samples.	RIC 84086R01 (July, 1984)
U.S. Fish and Wildlife Service (USFWS)	Purpose of study was to: 1) determine the environmental fate of organochlorine pesticides and mercury in lake sediments under extreme leaching conditions; 2) determine if these contaminants can be resuspended under simulated dredging conditions; 3) evaluate sedimentation rates using cesium analyses to ascertain depth of most contaminated strata, and 4) conduct a literature review on restoration techniques for contaminated sediments. A total of 30 sediment cores were collected along with bottom muds, waters, and snow for leaching and sedimentation studies.	RIC 84142R01 (April, 1984)

PRIOR INVESTIGATIONS

Dames and Moore

SCOPE OF WORK

Conducted a contamination survey of southern tier of RMA in support of proposed airport expansion and concurrent EIS. Objectives included delineation of locations and areal extents of lake sludge deposits, volume estimates of contaminated material in all ponds, ditches, and sludge in southern tier (sites 11-1, 12-1 and 12-2 and Havana Ponds (Section 11), and determination of migration potential in area. Over 140 boreholes were drilled at Sites 11-1 and 12-1, and 8 samples were collected from Rod and Gun Club Pond, including two in the bisect ditch.

REFERENCE

RIC 85218R01
(July, 1985)

Table SSA 1.1-3 List of Pertinent Remedial Investigation Reports/Investigations

REPORT NAME	RMACPHT SITE NUMBER	SITE NAME	VERSION	REPORT DATE	TASK NUMBER
SOIL INVESTIGATIONS					
Final Phase I CAR	1- 1	Drainage Ditches	3.4	May 1987	7
Final Phase I CAR	1- 2	Upper & Lower Derby Lakes	3.2	June 1987	12
Final Phase I CAR	1-12	Trash Dump	3.2	April 1987	12
Final Phase I CAR	2- 1	Drainage Ditches	3.3	July 1987	7
Final Phase I CAR	2- 5	Trench	3.2	April 1987	2
Final Phase I CAR	2-17a	Lake Ladora	3.2	July 1987	7
Final Phase I CAR	2-17b	Lake Mary	3.2	July 1987	7
Final Phase I CAR	3-2/3-3	Drainage Ditch & Overflow Basin	3.2	December 1987	7
Final Phase I CAR	6- 2	Eastern Upper Derby Lake	3.2	May 1987	12
Final Phase I CAR	11- 1	Buried Lake Sludge	3.3	June 1987	12
Final Phase I CAR	12- 1	Buried Lake Sludge	3.2	December 1987	12
Final Phase I CAR	12- 2	Rod and Gun Club Pond	3.3	April 1987	12
Final Phase I CAR	1-UNC	Nonsource Area	3.1	April 1987	7
Final Phase I CAR	2-UNC	Nonsource Area	3.3	May 1987	7
Final Phase I CAR	6-UNC	Nonsource Area *	3.1	June 1988	15
Final Phase I CAR	7-UNC	Nonsource Area	3.2	December 1987	15
Final Phase I CAR	11-UNC	Nonsource Area **	3.1	July 1987	15
Final Phase I CAR	12-UNC	Nonsource Area	3.2	July 1987	15
Final Phase II Data Add'm	1- 1	Drainage Ditches	3.1	October 1988	20
Final Phase II Data Add'm	1- 2	Upper & Lower Derby Lakes	3.1	October 1988	20
Final Phase II Data Add'm	1-12	Trash Dump	3.1	October 1988	20
Final Phase II Data Add'm	2- 1	Drainage Ditches	3.1	October 1988	20
Final Phase II Data Add'm	2- 5	Trench	3.1	October 1988	2
Final Phase II Data Add'm	2-15	Open Storage ***	3.1	October 1988	20
Final Phase II Data Add'm	2-16	Open Pit ***	3.1	October 1988	20
Final Phase II Data Add'm	2-17a	Lake Ladora	3.1	October 1988	20
Final Phase II Data Add'm	2-17b	Lake Mary	3.1	October 1988	20
Final Phase II Data Add'm	3-2/3-3	Drainage Ditch & Overflow Basin	3.1	October 1988	20
Final Phase II Data Add'm	6- 2	Eastern Upper Derby Lake	3.1	October 1988	20
Final Phase II Data Add'm	11- 1	Buried Lake Sludge	3.1	October 1988	20
Final Phase II Data Add'm	12- 1	Buried Lake Sludge	3.1	October 1988	20
Final Phase II Data Add'm	12- 2	Rod and Gun Club Pond	3.1	October 1988	20
Final Phase II Data Add'm	1-UNC	Nonsource Area	3.1	October 1988	20
Final Phase II Data Add'm	11-UNC	Nonsource Area	3.1	October 1988	22
Final Phase II Data Add'm	12-UNC	Nonsource Area	3.1	October 1988	22
GROUNDWATER INVESTIGATIONS					
Water Quantity/Quality Survey - Final Initial Screening Program Report - Vol. 1, Vol. 2, Vol. 3			--	August 1988	4
Water Quantity/Quality Survey - Final Screening Program Report - 3rd/4th Quarter 1987			--	May 1988	4
Draft Final Water Remedial Investigation Report			--	September 1988	44

* Includes Site 6-9, Vegetation Stress

** Includes Site 11-2, Disturbed Area (Havana Pond)

*** Included in data packet for sites 2-10, 2-11, 2-15, and 2-16

Add'm - Addendum

TABLE SSA 1.1-4 - Summary of Remedial Investigations Tasks - Southern Study Area. Page 1 of 2

TASK	SCOPE OF WORK	NUMBER OF BORINGS IN STUDY AREA	STATUS	REFERENCES	
2	Phase I and II soil investigation in South Plants area to define nature and extent of soils contamination over 19 identified sources	10/5a	Completed in 1987	o	Final Technical Plan (RIC 87006R01) August, 1985 o Final CAR and Phase II data packet for SSA site 2-5
4	One year hydrologic surveillance program including measurements of stream flow, groundwater levels, and water quality	NA	Completed in 1987	o	Final Technical Plan (RIC 87013R01) September, 1986 o Initial Screening Program Report (RIC 87253R01)
7	Phase I soils and sediments investigation in 10 identified source and two (2) non-source areas in Sections 1, 2, 3, 24, and 30. Investigation conducted to define the nature and extent of contamination.	180/0	Completed in 1987	o	Final Technical Plan (RIC 86238R02) February, 1986 o Final CARs for SSA sites 1-1, 1-UNC, 2-UNC, 2-1, 2-17, and 3-2/3-3
12	Phase I soils and sediments investigation in six (6) identified source areas in sections 1, 6, 11 and 12. Investigation conducted to define the nature and extent of contamination.	81/0	Completed in 1987	o	Final Technical Plan (RIC 86238R01) February, 1986 o Final CARs for SSA sites 1-2, 1-12, 6-2, 11-1, 12-1 and 12-2
15	Phase I soils investigation in 11 source and 12 non-source areas in sections 3 through 9, 11, 12, 31, 32, and 33. This investigation revisited many Phase I sites to define the nature and extent of contamination. Estimates of contaminated volumes of material are revised from previous Phase I investigations	82/0	Completed in 1988	o	Final Technical Plan (RIC 87336R02) November, 1987 o Final CARs for SSA sites 6-UNC, 7-UNC, 11-UNC and 12-UNC
20	Phase II soils/sediment investigations in 16 source areas in sections 1, 2, 3, 6, 11, 12, 24, and 30. This investigation revisited many Phase I sites to further define the extent of soils and sediments contamination.	0/189	Completed in 1988	o	Final Technical Plan December, 1987 o Phase II Data Packets for SSA sites 1-1, 1-2, 1-12, 1-UNC, 2-1, 2-15, 2-16, 2-17, 3-2/3-3, 6-2, 11-1, 12-1, and 12-2

TABLE SSA 1.1-4 - Summary of Remedial Investigations Tasks - Southern Study Area. Page 2 of 2

<u>TASK</u>	<u>SCOPE OF WORK</u>	<u>NUMBER OF BORINGS IN STUDY AREA</u>	<u>STATUS</u>	<u>REFERENCES</u>
22	Phase II soils investigations in designated source and nonsource areas as required, based on on-going Phase I investigations. Work included soil borings, geophysical analyses, and trenching, and was conducted in Sections 3 through 9, 11, 12, 31, 32 and 33.	0/20	Completed in 1988	<ul style="list-style-type: none"> o Letter Technical Plan o Phase II data packets for SSA sites 11-UNC and 12-UNC
24	Phase I soils investigation of Army Spill sites, and a physical survey of all structures at RMA.	0/0	Completed in 1988	<ul style="list-style-type: none"> o Final Technical Plan November, 1987
44	Supplement Task 4 on- and off-post ground/surface water monitoring program with additional hydrological data; assess the distribution and concentration levels of contaminants and monitor changes in water quality; identify areas of significant public exposure and potential migratory pathways.	NA	Completed in 1988	<ul style="list-style-type: none"> o Final Technical Plan
48	Supplemental Phase II surveys of sites on RMA, including some in southern tier. Work included soils and groundwater investigations.	0/20	Completed in 1988	<ul style="list-style-type: none"> o Letter Technical Plan
a	Phase I borings/Phase II borings NA - Not Applicable			

Table SSA 1.2-1. Structures Currently Standing in the Southern Study Area.
Page 1 of 2.

STRUCTURE NUMBER	SECTION	STRUCTURE FUNCTION	YEAR BUILT
145	11	South Gate Guardhouse	1959
291	2	Guard Station - Foundation	1943
368	2	Swimming Pool and Filter House	1955
369	1	Lower Derby Valve Gate	1948
371	2	Process/Potable Water Pump Station	1942
372	2	Million Gallon Potable Water Reservoir	1942
372A	2	Chlorinator Station	1956
373	2	Officers' Station	Acquired in 1942
373B	2	Garage to Building 373	Acquired in 1942
374	2	Water Treatment Pit	1942
383	2	Community Club	1974
383A	2	Community Club Storage	**
841	12	Colorado Public Service Co. Meter House	1942
846	12	Recreation Building	1949
863	12	Target Range House	1952
NN0101	1	Upper Derby Valve Gate	**
NN1201	12	Long Metal Shed	**

** = Date of construction not located

Table SSA 1.2-1. Structures Currently Standing in the Southern Study Area.
Page 2 of 2.

STRUCTURE NUMBER	SECTION	STRUCTURE FUNCTION	YEAR BUILT
NN1202	12	Square Metal Shed	**
NN1203	12	Wooden Shed	**
NN1204	12	Wooden Frame	**
NN1205	12	Wooden Shed	**
NN1206	12	Shooting Bunker	**
NN1207	12	Shooting Bunker	**
NN1208	12	Brick Structure	**
NN1209	12	Concrete Bunker	**
NN1210	12	Concrete Bunker	**
NN1211	12	Concrete Bunker	**
NN1212	12	Concrete Bunker	**
NN1213	12	Maintenance Shop	**

** = Date of construction not located

Table SSA 1.4-1. Summary of Physical and Hydrologic Properties of MNA Soils. Page 1 of 1

Soil Series	Textural	Typical Depth of Profile (in)	% Clay ²	Bulk Density (g/cm ³)	Hydraulic Conductivity (in/hr) ²	Available Water Holding Capacity (in/in of soil) ²	Erosion Resist ²
Breaser	SM, SM/SC, SC	60	6-18	1.5-1.8	0.14-7.0	0.09-0.14	Moderate-Severe
Satanta	ML, CL, CL/ML, SM, SC	60	7-30	1.5-1.6	0.14-14	0.09-0.20	Slight-Moderate
Truckton	SM, SM/SC, SM/SP	60	10-16	1.4-1.6	1.4-14	0.09-0.12	Moderate
Weld	ML, CL/ML, CL, SM, SM/SC	70	27-50	1.2-1.4	0.001-7.0	0.18-0.23	Moderate-Severe
Aquic Haplustolls	ML, CL, SC	62	16-30	NA	0.14-7.0	0.14-0.22	Moderate-Severe
Disturbed Land	SM, SM/SC, SP	not estimable	not estimable	1.4-2.1	not estimable	not estimable	not estimable

- 1) Textural key: CL = inorganic clay (low to medium plasticity); ML = inorganic silt w/very fine sand; SC = clayey sand; SM = silty sand; SP = poorly graded sand; texture varies dependent on position in profile
- 2) Typical pedon characteristics (vary with depth)
- NA = information not available
- in = inches
- in/hr = inches per hour

Sources: USDA-SUS, 1967; Helling, 1971; USDA-SUS undated; MKE, 1988

Table SSA 1.4-2. Summary of Chemical Properties of NMA Soils. Page 1 of 1

Soil Series	Soil pH	% Organic Carbon	Electrical Conductivity (mmhos/cm)	Cation Exchange Capacity (meq/100g)	% Lime	Sodium Adsorption Ratio
Bresser	6.0-8.1	0.1-0.7	0.4-2.7	5.3-20	0.3-20	0.9-1.3
Satanta	6.3-9.0	0.1-1.7	0.3-8.6	5.7-26	0.1-17	0.5-11
Truckton	6.5-8.5	0.1-0.9	0.4-1.2	1.6-26	0.3-40	0.7-2.4
Weld	6.2-8.4	0.2-1.7	0.4-1.1	19.8-39	0.3-34	0.4-2.4
Aquic Maptustolls	6.9-8.4	0.2-1.5	1.0-4.7	7.4-27	0.5-28	0.9-15
Disturbed Land	7.0-8.4	0.1-0.7	0.8-4.5	6.4-19	0.6-10	1.6-8.3

NA = information not available

LT = less than

l = typical pedon characteristics (vary with depth)

mmhos/cm = millimhos per centimeter

Sources: USDA-SCS, 1967; Helling, 1971; USDA-SCS, undated; MRE 1988

Table SSA 1.4-3 Summary of Physical and Chemical Characteristics of Selected Lake and Pond Sediments. Page 1 of 1.

Parameter	Upper Derby Lake	Lower Derby Lake	Eastern Upper Derby Lake	Lake Ladora	Lake Mary	Red & Gun Club Pond
Geologic Material	Silty sands; clayey sands; silts	Organic silts; sandy clays; gravelly sands	Silty sands	Clays; sands; silts	Organic silty sands; gravelly sands	Silty sands; clayey sands
% Moisture	4.8-26	13-77	3.1-3.7 NA	15-25	12-23	7.7-29
Particle Size Analyses % Passing Sieve No.						
4 (Gravel)	100	100		100	100	100
10 (Sand)	99-100	98-100		96-100	98-100	99-100
40 (Sand)	72-100	81-100		37-94	26-94	80-95
200 (Silts/clays)	15-97	12-97		6-64	3-65	16-35
Total Organic Carbon (%)	0.05-1.4	0.05-2.6	.06-.67	ND-1.0	ND-0.53	0.09-1.1
Soil Reaction (pH)	5.9-8.8	6.9-8.2	5.8-7.0	6.7-8.5	6.6-7.9	5.2-7.6
Electrical Conductivity (umhos/cm)	22-832	54-840	26-157	123-1110	104-1340	117-925
Redox Potential (mV)	273-354	1.4-332	266-366	67-238	206-403	421-504

mV - Millivolts
 NA - Not analyzed
 ND - Not detected
 umhos/cm - Micromhos per centimeter

Table SSA 1.5-1 In Situ Water Quality Measurements at Selected Southern Study Area Waterbodies (1987)¹.

Page 1 of 1

Parameter	Sample Month	Lower ² Derby Lake		Lake Ladora ²		Lake Mary ²	
		U	L	U	L	U	L
Temperature (°C)	Apr	16.0	16.0	16.8	16.8	17.5	17.5
	May	19.0	19.5	20.5	20.0	20.0	22.0
	Jun	21.0	20.1	21.0	21.0	21.0	21.0
	Aug	24.0	26.0	21.0	23.0	24.8	23.6
	Nov	10.8	11.5	12.0	11.9	12.1	11.9
Dissolved Oxygen (mg/l)	Apr	--	--	9.2	9.1	11.6	10.6
	May	8.4	9.6	10.5	10.1	14.2	12.9
	Jun	9.9	8.4	9.2	11.3	14.9	13.9
	Aug	11.5	11.3	12.7	8.2	9.9	8.4
	Nov	11.0	11.3	11.7	11.2	10.3	10.3
Dissolved Oxygen (%Sat.)	Apr	--	--	95	94	121	111
	May	91	105	117	111	156	148
	Jun	111	93	103	127	167	156
	Aug	138	139	143	96	119	99
	Nov	99	104	108	104	96	95
pH	Apr	8.1	8.3	8.1	8.3	8.5	8.3
	May	8.0	8.2	8.1	8.0	8.9	8.8
	Jun	8.4	8.1	8.0	8.2	9.3	9.5
	Aug	8.9	9.0	7.8	8.9	9.6	9.2
	Nov	8.3	8.3	7.6	8.1	9.1	9.0
Conductivity (umhos/cm @ 25°C)	Apr	610	617	610	617	653	673
	May	634	615	720	740	671	696
	Jun	550	550	658	640	625	625
	Aug	425	425	800	600	600	550
	Nov	487	480	765	700	750	700
Secchi Depth (m)	Apr	0.3	0.4	1.0	2.8	1.2	2.6
	May	0.6	0.6	0.8	3.0	2.1	2.5
	Jun	0.5	0.5	1.0	2.5	1.5	2.2
	Aug	0.6	0.6	0.8	2.6	1.9	2.5
	Nov	0.6	0.6	1.2	3.8	1.5	2.8

Notes:

¹ All data are from a depth of 1.0 m, or from the nearest depth sampled (range = 0.5 - 1.3 m).

² U = upper end of lake
L = lower end of lake

Table SSA 1.5-2 General Water Quality Indicators of Selected Southern Study
Area Waterbodies (1987)¹. Page 1 of 1

Parameter	Sample Month	Lower Derby Lake	Lake Ladora	Lake Mary
Alkalinity (mg/l as CaCO ₃)	Apr	124	147	181
	Jun	104	136	108
	Aug	100	126	114
	Nov	109	106	99
Acidity (mg/l as CaCO ₃)	Apr	0	0	0
	Jun	0	0	0
	Aug	0	0	0
	Nov	0	0	0
Hardness (mg/l as CaCO ₃)	Apr	160	184	154
	Jun	148	184	98
	Aug	132	168	108
	Nov	125	180	105
Total Dissolved Solids (mg/l)	Apr	378	423	413
	Jun	400	434	360
	Aug	365	440	445
	Nov	290	430	410
Total Suspended Solids (mg/l)	Apr	24	4	7
	Jun	20	3	2
	Aug	18	3	14
	Nov	15	3	6
Turbidity (NTU)	Apr	11	3.3	1.6
	Jun	12	2.2	1.2
	Aug	11	0.6	4.9
	Nov	6.9	1.7	2.2
True Color (Pt Co Units)	Apr	--	--	--
	Jun	48	28	24
	Aug	15	15	22
	Nov	25	25	25

Notes:

¹ All data are from a depth of 1.0 m, or from the nearest depth sampled (range = 0.5 - 1.3 m).

² U = upper end of lake
L = lower end of lake

Table SSA 1.5-3 Concentrations of Major Anions and Cations in Selected Southern Study Area Waterbodies (1987)¹. Page 1 of 1

<u>Parameter</u>	<u>Sample Month</u>	<u>Lower Derby Lake</u>	<u>Lake Ladora</u>	<u>Lake Mary</u>
Bicarbonate (mg/l)	Apr	124	147	167
	Jun	104	136	100
	Aug	94	122	74
	Nov	105	106	81
Carbonate (mg/l)	Apr	0	0	14
	Jun	0	0	8
	Aug	6	4	40
	Nov	4	0	18
Chloride (mg/l)	Apr	85	85	113
	Jun	60	71	96
	Aug	42	67	94
	Nov	25	64	89
Sulfate (mg/l)	Apr	106	126	56
	Jun	66	81	37
	Aug	58	81	51
	Nov	59	95	64
Sodium (mg/l)	Apr	79	89	103
	Jun	80	88	114
	Aug	59	87	96
	Nov	68	80	88
Potassium (mg/l)	Apr	11.0	4.3	5.0
	Jun	5.2	3.2	3.6
	Aug	5.5	3.7	4.9
	Nov	4.0	3.9	3.4
Magnesium (mg/l)	Apr	5.4	6.4	5.3
	Jun	4.4	4.8	4.5
	Aug	13.7	13.1	13.3
	Nov	11.9	17.6	13.1

Notes:

¹ All data are from a depth of 1.0 m, or from the nearest depth sampled (range = 0.5 - 1.3 m).

² U = upper end of lake
L = lower end of lake

Table SSA 1.5-4 Concentrations of Primary Nutrients (N & P) in Selected Southern Study Area Waterbodies (1987)¹. Page 1 of 1

<u>Parameter</u>	<u>Sample Month</u>	<u>Lower Derby Lake</u>	<u>Lake Ladora</u>	<u>Lake Mary</u>
Nitrate+	Apr	0.04	0.06	0.06
Nitrite N	Jun	0.10	0.07	0.07
(mg/l)	Aug	0.20	0.15	0.16
	Nov	0.09	0.11	2.60
Ammonia N	Apr	0.35	0.10	0.07
(mg/l)	Jun	0.45	0.22	0.19
	Aug	0.07	0.25	0.18
	Nov	0.11	0.34	0.50
Total	Apr	1.55	0.85	0.40
Kjeldahl N	Jun	3.65	1.08	0.67
(mg/l)	Aug	1.20	0.81	1.72
	Nov	0.93	1.96	2.60
Organic N	Apr	1.20	0.75	0.33
(mg/l)	Jun	3.20	0.86	0.48
	Aug	1.13	0.56	1.54
	Nov	0.82	1.62	2.10
Total	Apr	1.59	0.91	0.46
Combined N	Jun	3.75	1.15	0.74
(mg/l)	Aug	1.40	0.96	1.88
	Nov	1.02	2.07	5.20
Dissolved	Apr	LT.07	LT.07	LT.07
Reactive P	Jun	LT.01	LT.01	LT.01
(mg/l)	Aug	0.01	LT.01	0.03
	Nov	LT.01	0.08	LT.01
Total P	Apr	0.07	LT.07	LT.07
(mg/l)	Jun	0.11	LT.07	LT.07
	Aug	0.10	LT.07	0.14
	Nov	0.12	LT.07	LT.07

Notes:

¹ All data are from a depth of 1.0 m, or from the nearest depth sampled (range = 0.5 - 1.3 m).

² U = upper end of lake
L = lower end of lake

**TABLE SSA 1.5-5 HYDRAULIC CONDUCTIVITIES AND FLOW VELOCITIES -
SOUTHERN STUDY AREA**

GEOLOGIC UNIT	AVERAGE HYDRAULIC .. CONDUCTIVITY		AVERAGE POROSITY	HYDRAULIC GRADIENT	FLOW VELOCITY (ft/day)	WBZ
	(cm/sec)	(gpd/ft ²)	(%)			
Paleochannel	0.05	1060	40	0.004	1.51	1A-1
Eolian	0.02	424	30	0.016	3.02	1A-1
Denver Fm. (Fr. claystone)	0.001	21	20	0.012	0.17	1A-1
Denver Fm. (Sandstones - Unit A)	0.008	170	30	0.015	1.16	2
Denver Fm. (Sandstones - ave. deep units)	0.0003	5	30	0.016	0.04	3

Sources:

Hydraulic Conductivities - Water RI
 Porosities - average values for material
 Hydraulic Gradients - measured from water table
 and potentiometric surface maps
 Flow Velocities - calculated from Darcy's Law and
 Continuity Equation

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 2 of 17.
Site 1-2b, Lower Derby Lake

Total Borings Total Samples	Phase I Analyses		Phase II Analyses		
	25	36	19	50	
Analytical Groups and Analytes Detected	CRL		CRL		
	Frequency of Detections / 1	Range (ug/g) / 2	Frequency of Detections / 1	Range (ug/g) / 2	Range (ug/g) / 2
<u>Volatiles Halogenated Organics</u>	None detected		Not analyzed		
1,1,2,2-Tetrachloroethane*					
1,1,1-Trichloroethane					
Carbon tetrachloride					
Chloroform					
Methylene chloride					
Tetrachloroethylene					
<u>Volatiles Hydrocarbons</u>					
Dicyclopentadiene					
Methylisobutyl ketone					
<u>Volatiles Aromatic Organics</u>					
Toluene					
<u>Dibromochloropropane</u>					
<u>Semivolatiles Halogenated Organics</u>					
Hexachlorocyclopentadiene	13/36	0.0089-0.12	11/38	0.0068-0.3	0.005-0.014
<u>Organochlorine Pesticides</u>					
Aldrin	None detected				
Chlordane					
Dichlorodiphenylethane					
Dichlorodiphenyltrichloroethane					
Dieldrin					
Endrin					
Isodrin					
Arsenic (LL=UKL-10)	None detected		Not analyzed		
<u>Mercury (LL=UKL-0.10)</u>	16/36	0.0091-4.1	10/50	0.057-1.2	0.05-0.060
<u>IUP Metals</u>					
Cadmium (LL=1.0-2.0)	0/36	BUCL	3/26	1.3-1.8	0.66-0.74
Chromium (LL=25-40)	19/36	6.8-24	22/26	9.3-150	5.2-6.5
Copper (LL=20-35)	26/36	6.3-75	21/26	7.2-35	4.7-4.9
Lead (LL=25-40)	13/36	14-88	22/26	12-42	8.4-13
Zinc (LL=60-80)	36/36	13-110	26/26	22-110	8.7-9.5

BUCL = Below Certified Reporting Limit.

LL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 3 of 17.

Site 2-17a, Lake Ladora

Total Borings Total Samples	Phase 1 Analyses 17 27		Phase 11 Analyses 23 69	
Analytical Groups and Analytes Detected	Frequency of Detections /1	Range (ug/g)	Frequency of Detections 1/ 2	Range (ug/g) /2
Volatiles Halogenated Organics				
1,1,2,2-Tetrachloroethane*	0/27	BCRL	0/33	BCRL
1,1,1-Trichloroethane	0/27	BCRL	1/33	0.3
Carbon tetrachloride	0/27	BCRL	0/33	0.30-0.40
Chloroform	0/27	BCRL	0/33	0.30
Methylene chloride	2/27	1.0-2	6/33	1.5-2.1
Tetrachloroethylene	1/27	1.0	0/33	0.70-2.0
Volatiles Hydrocarbons				
Dicyclopentadiene	0/27	BCRL	None detected	0.30
Methylisobutyl ketone	1/27	1.0	None detected	0.30
Volatiles Aromatic Organics				
Toluene	None detected	0.3-0.7	None detected	0.30
Dibromochloropropane				
2/27	0.01-0.097	0.005-0.014	2/30	0.0074-0.016
Semivolatile Halogenated Organics				
Hexachlorocyclopentadiene	None detected	0.005-0.014	None detected	0.005-0.014
Organochlorine Pesticides				
Aldrin	None detected	0.0029-1.7	8/63	0.0019
Chlordane	None detected	BCRL	0/63	0.023
Dichlorodiphenylethane	None detected	0.0046-0.024	6/63	0.0024
Dichlorodiphenyltrichloroethane	None detected	0.0088-0.15	3/63	0.0020
Dieldrin	None detected	0.0038-0.053	3/63	0.0033
Endrin	None detected	0.0069-0.0088	2/63	0.0058
Isodrin	None detected	0.0042-0.042	3/63	0.0011
Arsenic (IL-CRL-10)				
8/27	2.9-16	2.5-5.0	2/6	3.1-5.2
Mercury (IL-CRL-0.10)				
14/27	0.059-2.0	0.050-0.060	None detected	2.5-5.0
ICP Metals				
Cadmium (IL-1.0-2.0)	0/27	BCRL	1/18	0.66-0.74
Chromium (IL-25-40)	19/27	9.9-43	13/18	5.2-6.5
Copper (IL-20-35)	26/27	8.6-99	15/18	4.7-4.9
Lead (IL-25-40)	17/27	12-56	7/18	8.4-13
Zinc (IL-60-80)	27/27	20-170	18/18	8.7-9.5

BCRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 4 of 17.

Site 2-17b, Lake Mary

Total Borings Total Samples	Phase I Analyses		Phase II Analyses	
	4	7	5	15
Analytical Groups and Analytes Detected	Frequency of Detections /1	Range (ug/g)	CRL Range (ug/g) /2	Frequency of Detections 1/ Range (ug/g) /2
<u>Volatiles Halogenated Organics</u>	None detected			Not analyzed
1,1,2,2-Tetrachloroethane*				
1,1,1-Trichloroethane				
Carbon tetrachloride				
Chloroform				
Methylene chloride				
Tetrachloroethylene				
<u>Volatiles Hydrocarbons</u>	None detected			Not analyzed
Dicyclopentadiene				
Methylisobutyl ketone				
<u>Volatiles Aromatic Organics</u>	None detected			Not analyzed
Toluene				
<u>Dibromochloropropane</u>	None detected			Not analyzed
<u>Semivolatiles Halogenated Organics</u>	None detected			None detected
Hexachlorocyclopentadiene				
<u>Organochlorine Pesticides</u>	None detected			
Aldrin				1/15 0.0049 0.0019
Chlordane				0/15 BCRL 0.023
Dichlorodiphenylethane				2/15 0.0062-0.0082 0.0024
Dichlorodiphenyltrichloroethane				1/15 0.015 0.0020
Dieldrin				0/15 BCRL 0.0033
Endrin				0/15 BCRL 0.0058
Isodrin				0/15 BCRL 0.0011
<u>Arsenic (LL=URL-10)</u>	2/7 6.1-8.9 2.5-5.0			Not analyzed
<u>Mercury (LL=URL-0.10)</u>	None detected			None detected
<u>ICP Metals</u>				Not analyzed
Calcium (LL=1.0-2.0)	0/1 BCRL 0.60-0.74			
Chromium (LL=25-60)	6/7 12-25 3.2-6.5			
Copper (LL=20-35)	7/7 8.0-21 4.7-4.9			
Lead (LL=25-60)	1/7 18 8.4-13			
Zinc (LL=60-80)	7/7 28-80 8.7-9.5			

BCRL = Below Certified Reporting Limit.

LL = Indicator Level.

ug/g = Micrograms per gram

/2 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

* = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

/2 = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Snouthern Study Area. Page 5 of 17.

Site 6-2, Eastern Upper Derby Lake

Total Burings Total Samples	Phase I Analyses		Phase II Analyses	
	12	12	24	24
Analytical Groups and Analytes Detected	Frequency of Detections /1	Range (ug/g)	Frequency of Detections 1/ 24	Range (ug/g) /2
Volatiles Halogenated Organics				
1,1,2,2-Tetrachloroethane*	1/1	0.9	Not analyzed	
1,1,1-Trichloroethane	0/1	NCRL		
Carbon tetrachloride	0/1	NCRL		
Chloroform	0/1	NCRL		
Methylene chloride	0/1	NCRL		
Tetrachloroethylene	0/1	NCRL		
Volatiles Hydrocarbons				
Dicyclopentadiene	None detected			
Methylisobutyl ketone				
Volatiles Aromatic Organics				
Toluene	None detected			
Dibromochloropropane				
Semivolatile Halogenated Organics				
Hexachlorocyclopentadiene	None detected			
Organochlorine Pesticides				
Aldrin	None detected			
Chlordane				
Dichlorodiphenylethane				
Dichlorodiphenyltrichloroethane				
Dieldrin				
Endrin				
Isodrin				
Arsenic (IL=NCRL-10)	1/12	4.2	Not analyzed	
Mercury (IL=NCRL-0.10)	None detected			
ICP Metals				
Cadmium (IL=1.0-2.0)	0/12	NCRL		
Chromium (IL=25-40)	7/12	6.4-9.8		
Copper (IL=20-35)	10/12	6.8-13		
Lead (IL=25-40)	7/12	15-19		
Zinc (IL=60-80)	12/12	20-46		

NCRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

* = tentatively identified compound: the "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 6 of 17.

Site 12-2, Rod & Gun Club Pond

Analytical Groups and Analytes Detected	Phase I Analyses		Phase II Analyses		
	Frequency of Detections /1	Range (ug/g)	CRL Range (ug/g) /2	Frequency of Detections 1/	Range (ug/g)
					CRL Range (ug/g) /2
Total Borings					
Total Samples					
Volatiles Halogenated Organics					
1,1,2,2-Tetrachloroethane*	Not analyzed				
1,1,1-Trichloroethane					
Carbon tetrachloride					
Chloroform					
Methylene chloride					
Tetrachloroethylene					
Volatiles Hydrocarbons					
Dicyclopentadiene					
Methylisobutyl ketone					
Volatiles Aromatic Organics					
Toluene					
Dibromochloropropane					
Semivolatile Halogenated Organics					
Hexachlorocyclopentadiene					
Organochlorine Pesticides					
Aldrin					
Chlordane					
Dichlorodiphenylethane					
Dichlorodiphenyltrichloroethane					
Dieldrin					
Endrin					
Isodrin					
Arsenic (IL=CRL-10)					
Mercury (IL=CRL-0.10)					
LCP Metals					
Cadmium (IL=1.0-2.0)					
Chromium (IL=25-40)					
Copper (IL=20-35)					
Lead (IL=25-40)					
Zinc (IL=60-80)					

CRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/2 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 7 of 17.

Site 1-1, Drainage Ditches

Total Borings Total Samples	Phase I Analyses 7 16		Phase II Analyses 9 23	
	Frequency of Detections / 1	Range (ug/g)	Frequency of Detections / 2	Range (ug/g)
Analytical Groups and Analytes Detected				
<u>Volatiles Halogenated Organics</u>	None detected		None detected	
1,1,2,2-Tetrachloroethane*				
1,1,1-Trichloroethane				
Carbon tetrachloride				
Chloroform				
Methylene chloride				
Tetrachloroethylene				
<u>Volatiles Hydrocarbons</u>				
Bicyclopentadiene				
Methylisobutyl ketone				
<u>Volatiles Aromatic Organics</u>				
Toluene	1/9	0.4	None detected	
<u>Dibromochloropropane</u>	None detected		None detected	
<u>Semivolatile Halogenated Organics</u>				
Hexachlorocyclopentadiene	None detected		None detected	
<u>Organochlorine Pesticides</u>				
Aldrin	3/16	1.0-30	9/20	0.0026-7.0
Chlordane	0/16	0.3	1/20	0.0019-0.30
Dichlorodiphenylethane	0/16	0.0-2	0.39	0.023-2.0
Dichlorodiphenyltrichloroethane	0/16	0.30-0.6	4/20	0.0026-0.60
Dieldrin	3/16	0.30-0.6	5/20	0.0026-0.60
Endrin	0/16	0.4-5	17/20	0.0071-2.3
Isodrin	1/16	0.3-0.5	8/20	0.0033-0.30
		0.3	6/20	0.0058-0.50
				0.0016-1.5
Arsenic (IL=CKL-10)	1/16	4.8	Not analyzed	
Mercury (IL=CKL-0.10)	8/16	0.053-0.14	4/20	0.073-0.23
<u>ICP Metals</u>				
Cadmium (IL=1.0-2.0)	0/16	0.66-0.74	Not analyzed	
Chromium (IL=25-60)	7/16	8.5-18		
Copper (IL=20-35)	15/16	5.2-6.5		
Lead (IL=25-60)	3/16	5.8-34		
Zinc (IL=60-80)	16/16	12-17		
		8.4-13		
		18-130		
		8.7-9.5		

RCRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CKL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

* = Tentatively Identified Compound; the "detection limit" is 10% of the internal standard for the method used. There is no CKL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 8 of 17.

Site 2-1, Drainage Ditches						
Total Borings Total Samples	Phase I Analyses		Phase II Analyses			
	14	16	11	31	11	31
Analytical Groups and Analytes Detected	Frequency of Detections /1	Range (ug/g)	CRL Range (ug/g) /2	Frequency of Detections 1/	Range (ug/g)	CRL Range (ug/g) /2
Volatiles Halogenated Organics	None detected			Not analyzed		
1,1,2,2-Tetrachloroethane*						
1,1,1-Trichloroethane						
Carbon tetrachloride						
Chloroform						
Methylene chloride						
Tetrachloroethylene						
Volatiles Hydrocarbons						
Dicyclopentadiene	None detected			Not analyzed		
Methylisobutyl ketone						
Volatiles Aromatic Organics						
Toluene	None detected			Not analyzed		
Fluorochloropropane						
Semivolatiles Halogenated Organics						
Hexachlorocyclopentadiene	None detected			5/31	0.034-0.20	0.0018-0.60
Organochlorine Pesticides						
Aldrin	8/14	2.0-400	0.3	15/31	0.0054-280	0.0019-0.30
Chlordane	0/14	RCRL	0.6-2.0	6/31	0.038-1.7	0.023-2.0
Dichlorodiphenylethane	0/14	RCRL	0.3-0.6	12/31	0.012-4.6	0.0024-0.60
Dichlorodiphenyltrichloroethane	1/14	6.0	0.3-0.6	7/31	0.0038-0.40	0.0020-0.60
Dieldrin	9/14	0.3-100	0.3	25/31	0.0099-130	0.0033-0.30
Endrin	0/14	RCRL	0.3-0.5	8/31	0.037-0.37	0.0058-0.50
Isodrin	1/14	4.0	0.3	8/31	0.0021-3.5	0.0011-0.30
Arsenic (IL=CRIL-10)	3/14	4.2-4.9	2.5-5.0	Not analyzed		
Mercury (IL=CRIL-0.10)	6/14	0.072-0.86	0.050-0.060	4/25	0.080-0.51	0.050-0.060
ICP Metals						
Cadmium (IL=1.0-2.0)	2/14	0.98-1.3	0.66-0.74	2/25	1.1-1.2	0.66-0.74
Chromium (IL=25-40)	9/14	11-36	3.2-6.5	23/25	8.1-34	5.2-6.5
Copper (IL=20-35)	11/14	6.5-44	4.7-9.9	24/25	6.6-67	4.7-9.9
Lead (IL=25-40)	12/14	13-1,200	8.4-13	14/25	12-890	8.4-13
Zinc (IL=60-80)	14/14	23-160	8.7-9.5	25/25	15-180	8.7-9.5

CRIL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

1/ = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

2/ = Certified Reporting Limit (CRIL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. When in CRIL column.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 9 of 17.

Site 3-2/3-3, Drainage Ditch/Overflow Basin

Total Borings Total Samples	Phase I Analyses 8 17		Phase II Analyses 9 31	
	Frequency of Detections /1	Range (ug/g)	Frequency of Detections 1/	Range (ug/g)
Analytical Groups and Analytes Detected				
<u>Volatiles Halogenated Organics</u>				
1,1,2,2-Tetrachloroethane*	9/9	0.4-2.0	None detected	
1,1,1-Trichloroethane	0/9	BCNL		
Carbon tetrachloride	0/9	BCNL		
Chloroform	0/9	BCNL		
Methylene chloride	2/9	1.0-2.0		
Tetrachloroethylene	0/9	BCNL		
<u>Volatiles Hydrocarbons</u>				
Dicyclopentadiene	None detected			
Methylisobutyl ketone				
<u>Volatiles Aromatic Organics</u>				
Toluene	None detected			
<u>Dibromochloropropane</u>				
<u>Semivolatiles Halogenated Organics</u>				
Hexachlorocyclopentadiene	None detected			
<u>Organochlorine Pesticides</u>				
Aldrin	None detected			
Chlordane	2/17	6.4-14	2/29	0.0043-0.0044
Dichlorodiphenylethane			0/29	BCNL
Dichlorodiphenyltrichloroethane			5/29	0.023-2.0
Dieldrin			5/29	0.13-0.73
Endrin			5/29	0.0030-0.32
Isodrin			3/29	0.0043-0.059
			1/29	0.0033-0.30
			0/29	0.0058-0.50
			0/29	BCNL
Arsenic (IL=CNL-10)	2/17	6.4-14	2/7	0.0019-0.30
Mercury (IL=CNL-0.10)	3/17	0.059-0.13	2/10	0.023-2.0
<u>ICP Metals</u>				
Cadmium (IL=1.0-2.0)	4/17	1.0-1.4	Not analyzed	0.0024-0.60
Chromium (IL=25-40)	3/17	8.5-12		0.0020-0.60
Copper (IL=20-35)	14/17	5.8-12		0.0030-0.32
Lead (IL=25-40)	6/17	10-20		0.0043-0.059
Zinc (IL=60-80)	17/17	22-54		0.013
				BCNL
				3.6-5.5
				0.087-0.089
				0.050-0.060

BCNL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CNL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CNL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 10 of 17.

Site 11-1, Buried Lake Sediments						
Analytical Groups and Analytes Detected	Phase I Analyses		Phase II Analyses			
	12	34	9	27	CRL	
	Frequency of Detections /1	Range (ug/g)	Frequency of Detections /1	Range (ug/g)	Range (ug/g) /2	Range (ug/g) /2
Volatiles Halogenated Organics	None detected		Not analyzed			
1,1,2,2-Tetrachloroethane*						
1,1,1-Trichloroethane						
Carbon tetrachloride						
Chloroform						
Methylene chloride						
Tetrachloroethylene						
Volatile Hydrocarbons						
Bicyclopentadiene						
Methylisobutyl ketone						
Volatile Aromatic Organics						
Toluene						
Dibromochloropropane						
Semi-volatile Halogenated Organics						
Hexachlorocyclopentadiene						
Organochlorine Pesticides						
Aldrin						
Chlordane						
Dichlorodiphenylethane						
Dichlorodiphenyltrichloroethane						
Dieldrin						
Endrin						
Isodrin						
Arsenic (LL=CRL-10)						
Mercury (LL=CRL-0.10)						
ICP Metals						
Cadmium (LL=1.0-2.0)						
Chromium (LL=25-40)						
Copper (LL=20-35)						
Lead (LL=25-40)						
Zinc (LL=60-80)						

CRL = Below Certified Reporting Limit.

LL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 11 of 17.

Site 12-1, Buried Lake Sediments

Analytical Groups and Analytes Detected	Phase I Analyses		Phase II Analyses		Frequency of Detections 1/	Range (ug/g) /2	CRL Range (ug/g) /2
	12	34	11	41			
Total Borings							
Total Samples							
Volatiles Halogenated Organics							
1,1,2,2-Tetrachloroethane*	None detected				None detected		
1,1,1-Trichloroethane							
Carbon tetrachloride							
Chloroform							
Methylene chloride							
Tetrachloroethylene							
Volatiles Hydrocarbons							
Dicyclopentadiene							
Methylisobutyl ketone							
Volatiles Aromatic Organics							
Toluene							
Dibromochloropropane							
Semivolatiles Halogenated Organics							
Hexachlorocyclopentadiene	1/34	0.018			None detected	0.005-0.14	
	1/34	1.0			None detected	0.3-0.6	
Organochlorine Pesticides							
Aldrin	5/34	0.4-20			17/39	0.0042-54	0.0019-0.3
Chlordane	1/34	7.0			2/39	0.30-1.3	0.023-2.0
Dichlorodiphenylethane	0/34	NCRL			10/39	0.0038-0.52	0.0024-0.6
Dichlorodiphenyltrichloroethane	0/34	NCRL			9/39	0.0056-0.73	0.0020-0.6
Dieldrin	7/34	0.5-20			27/39	0.0051-53	0.0033-0.3
Endrin	1/34	3.0			7/39	0.010-2.7	0.0038-0.5
Isodrin	0/34	NCRL			7/39	0.012-0.23	0.0011-0.3
Arsenic (IL=CRL-10)	1/34	3.0			Not analyzed		
Mercury (IL=CRL-0.10)	11/34	0.056-2.3			13/39	0.055-1.2	0.050-0.060
ICP Metals							
Cadmium (IL=1.0-2.0)	1/34	1.1			Not analyzed		
Chromium (IL=25-40)	18/34	6.6-16					
Copper (IL=20-35)	24/34	5.6-32					
Lead (IL=25-40)	6/34	14-26					
Zinc (IL=60-80)	34/34	12-57					

NCRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

* = Tentatively Identified Compound: the "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 12 of 17.

Site 1-12, Trash Dump										Site 2-5, Trench							
Total Borings Total Samples		Phase I Analyses 8 17		Phase II Analyses 3 (+ 3 trenches) 15		Phase I Analyses /3 2 5											
Analytical Groups and Analytes Detected										Frequency of Detections /1		Range (ug/g)		CRL Range (ug/g) /2			
										Frequency of Detections /1		Range (ug/g)		CRL Range (ug/g) /2			
Volatile Halogenated Organics										None detected							
1,1,2,2-Tetrachloroethane*																0.30*	
1,1,1-Trichloroethane										U/3		BCRL				0.30-0.40	
Carbon tetrachloride										U/3		BCRL				0.30	
Chloroform										U/3		0.81				0.30	
Methylene chloride										U/3		BCRL				0.7-2.0	
Tetrachloroethylene										U/3		BCRL				0.30	
Volatile Hydrocarbons										None detected						0.30*	
Dicyclopentadiene										1/11		2.5				0.30-0.40	
Methylisobutyl ketone										U/3		BCRL				0.30	
Volatile Aromatic Organics										None detected						0.30	
Toluene										None detected						None detected	
Dibromochloropropane										None detected						None detected	
Semivolatile Halogenated Organics										None detected						None detected	
Hexachlorocyclopentadiene										2/15		0.0079-0.040				0.0018-0.60	
Organochlorine Pesticides										0/17		BCRL				None detected	
Aldrin										0/17		BCRL				None detected	
Chlordane										0/17		0.6-2				0.0019-0.3	
Dichlorodiphenylethane										0/17		BCRL				0.023-2.0	
Dichlorodiphenyltrichloroethane										0/17		BCRL				0.0024-0.60	
Dieldrin										1/17		0.90				0.0020-0.60	
Endrin										0/17		BCRL				0.023-16	
Isodrin										0/17		BCRL				0.0033-0.30	
Arsenic (IL=CNL-10)										None detected						0.0058-0.50	
Mercury (IL=CNL-0.10)										1/17		0.088				0.0011-0.30	
ICP Metals										None detected						None detected	
Cadmium (IL=1.0-2.0)										0/17		BCRL				None detected	
Chromium (IL=25-40)										6/17		6.1-11				0.66-0.74	
Copper (IL=20-35)										12/17		6.6-27				5.2-6.5	
Lead (IL=25-40)										3/17		16-21				4.7-4.9	
Zinc (IL=60-80)										17/17		13-51				8.4-13.7	
																14-24	
																0.66-0.74	
																5.2-6.5	
																4.7-4.9	
																8.4-13.7	
																8.7-9.5	

NCRL = Below Certified Reporting Limit.

IL = Indicator level.

ug/g = Micrograms per gram

ug/g = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

/3 = Phase II program not conducted.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 13 of 17.

Analytical Groups and Analytes Detected	Site 2-15, Open Storage			Site 2-16, Open Pit		
	Phase 1 Analyses / 3			Phase 1 Analyses / 3		
	Frequency of Detections / 1	Range (ug/g) / 2	CRL Range (ug/g) / 2	Frequency of Detections / 1	Range (ug/g) / 2	CRL Range (ug/g) / 2
total Burings						
total Samples						
Volatiles Halogenated Organics						
1,1,2,2-Tetrachloroethane*	0/1	BCRL	0.3*	None detected		
1,1,1-Trichloroethane	0/1	BCRL	0.3			
Carbon tetrachloride	0/1	BCRL	0.3			
Chloroform	0/1	BCRL	0.3			
Methylene chloride	1/1	5	0.7-2			
Tetrachloroethylene	0/1	BCRL	0.3			
Volatiles Hydrocarbons						
Dicyclopentadiene	None detected			None detected		
Methylisobutyl ketone						
Volatiles Aromatic Organics						
Toluene	None detected			None detected		
Dibromochloropropane						
None detected				None detected		
Semivolatile Halogenated Organics						
Hexachlorocyclopentadiene	None detected			None detected		
Organochlorine Pesticides						
Aldrin	None detected			None detected		
Chlordane						
Dichlorodiphenylethane						
Dichlorodiphenyltrichloroethane						
Dieldrin						
Endrin						
Isodrin						
Arsenic (IL=CRL-10)						
None detected				None detected		
Mercury (IL=CRL-0.10)						
None detected				None detected		
ICP Metals						
Cadmium (IL=1.0-2.0)	0/2	BCRL	0.66-0.76	0/2	BCRL	0.66-0.76
Chromium (IL=25-40)	2/2	8.8-9.9	5.2-6.5	2/2	15-20	5.2-6.5
Copper (IL=20-35)	0/2	BCRL	4.7-6.9	2/2	8.1-11	4.7-6.9
Lead (IL=25-40)	1/2	10	8.4-13	2/2	15-19	8.4-13
Zinc (IL=60-80)	2/2	25-27	8.7-9.5	2/2	44-49	8.7-9.5

BCRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

/3 = Phase II program not conducted.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 14 of 17.

		Site 6-9, Vegetation Stress		Site 11-2, Disturbed Area	
Total Borings Total Samples		Phase I Analyses /3 2 2		Phase I Analyses /3 2 2	
Analytical Groups and Analytes Detected		Frequency of Detections /1	Range (ug/g) /2	Frequency of Detections /1	Range (ug/g) /2
			CRL (ug/g)		CRL (ug/g)
<u>Volatiles Halogenated Organics</u>		None detected		None detected	
1,1,2,2-Tetrachloroethane*					
1,1,1-Trichloroethane					
Carbon tetrachloride					
Chloroform					
Methylene chloride					
Tetrachloroethylene					
<u>Volatiles Hydrocarbons</u>		None detected		None detected	
Dicyclopentadiene					
Methylisobutyl ketone					
<u>Volatiles Aromatic Organics</u>		None detected		None detected	
Toluene					
<u>Dibromochloropropane</u>		None detected		None detected	
<u>Semivolatiles Halogenated Organics</u>		None detected		None detected	
Hexachlorocyclopentadiene					
<u>Organochlorine Pesticides</u>		None detected		None detected	
Aldrin					
Chlordane					
Dichlorodiphenylethane					
Dichlorodiphenyltrichloroethane					
Dieldrin					
Endrin					
Isodrin					
<u>Arsenic (IL=CRL-10)</u>		None detected		None detected	
<u>Mercury (IL=CRL-0.10)</u>		None detected		None detected	
<u>ICP Metals</u>					
Cadmium (IL=1.0-2.0)		0/2	BCRL 0.66-0.74	0/2	BCRL 0.66-0.74
Chromium (IL=25-40)		2/2	9.7-12	2/2	BCRL 5.2-6.5
Copper (IL=20-35)		2/2	7.5-9.3	2/2	7.4-8.0
Lead (IL=25-40)		1/2	12	0/2	BCRL 8.4-13
Zinc (IL=60-80)		2/2	36	2/2	24-27

BCRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

/3 = Phase II program not conducted.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no rest value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 15 of 17.

Site 1-UNC, Nonsource Area										Site 2-UNC, Nonsource Area			
Total Borings Total Samples		Phase I Analyses 40 40		Phase II Analyses 18 46		Phase I Analyses /3 45 45		CML		CML			
Analytical Groups and Analytes Detected		Frequency of Detections /1	Range (ug/g)	Frequency of Detections /2	Range (ug/g)	Frequency of Detections /1	Range (ug/g)	Frequency of Detections /2	Range (ug/g)	Frequency of Detections /1	Range (ug/g)	Frequency of Detections /2	Range (ug/g)
Volatile Halogenated Organics		Not analyzed		Not analyzed		Not analyzed		Not analyzed		Not analyzed		Not analyzed	
1,1,2,2-tetrachloroethane*													
1,1,1-Trichloroethane													
Carbon tetrachloride													
Chloroform													
Methylene chloride													
Tetrachloroethylene													
Volatile Hydrocarbons													
Dicyclopentadiene													
Methylisobutyl ketone													
Volatile Aromatic Organics													
Toluene													
Dibromochloropropane													
Semivolatile Halogenated Organics													
Hexachlorocyclopentadiene		1/40		0.050		0.0050-0.14		None detected		None detected		0.013-0.18	
		None detected						4/27		0.013-0.18		0.0018-0.6	
Organochlorine Pesticides													
Alar		0/40		BURL		0.3		7/27		0.0024-111		0.0019-0.30	
Chlordane		0/40		BURL		0.6-2		4/27		0.23-3.1		0.023-2.0	
Dichlorodiphenylethane		0/40		BURL		0.3-0.6		5/27		0.0097-5.5		0.0024-0.60	
Dichlorodiphenyltrichloroethane		0/40		BURL		0.5-0.6		7/27		0.0037-88		0.0020-0.60	
Dieldrin		1/40		4.0		0.3		7/27		0.015-294		0.0033-0.30	
Endrin		0/40		BURL		0.3-0.5		5/27		0.039-37		0.0058-0.50	
Isodrin		0/40		BURL		0.3		4/27		0.043-2.2		0.0011-0.30	
Arsenic (IL=CRL-10)		None detected						Not analyzed		None detected			
Mercury (IL=CRL-0.10)		1/40		0.19		0.050-0.060		4/9		0.074-3.5		0.050-0.060	
ICP Metals													
Cadmium (IL=1.0-2.0)		0/40		BURL		0.66-0.74		0/6		BURL		0.66-0.74	
Chromium (IL=25-40)		22/40		6.4-19		5.2-6.5		6/6		0.12-11		5.2-6.5	
Copper (IL=20-35)		20/40		5.8-17		4.7-8.9		4/6		6.8-11		4.7-4.9	
Lead (IL=25-40)		20/40		12-44		8.4-13		4/6		12-75		8.4-13	
Zinc (IL=60-80)		40/40		12-59		8.7-9.5		6/6		27-94		8.7-9.5	
										0/45		BURL	
										18/45		8.2-20	
										12/45		5.9-13	
										13/45		11-18	
										44/45		14-56	
												0.66-0.74	
												5.2-6.5	
												4.7-4.9	
												8.4-13	
												8.7-9.5	

CRL = Below Certified Reporting Limit

CRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

* = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

/3 = Phase II program not conducted.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CML value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 16 of 17.

Site 7-UNC, Nonsource Area				Site 11-UNC, Nonsource Area			
Analytical Groups and Analytes Detected	Phase I Analyses/3		CRL Range (ug/g) /2	Phase I Analyses		Phase II Analyses	
	Frequency of Detections /1	Range (ug/g)		Frequency of Detections /1	Range (ug/g)	Frequency of Detections /1	Range (ug/g)
Total Borings	12			39		12	
Total Samples	12			40		36	
Volatiles Halogenated Organics							
1,1,2,2-Tetrachloroethane*	Not analyzed			None detected		0/9	BCRL 0.30*
1,1,1-Trichloroethane						0/9	BCRL 0.088-0.40
Carbon tetrachloride						2/9	0.39-0.73 0.30
Chloroform						0/9	BCRL 0.068-0.3
Methylene chloride						0/9	BCRL 0.7-3.7
Tetrachloroethylene						0/9	BCRL 0.27-0.30
Volatiles Hydrocarbons	None detected			None detected		None detected	
Dicyclopentadiene							
Methylisobutyl ketone							
Volatiles Aromatic Organics							
Toluene	Not analyzed			None detected		1/18	0.43 0.19
Dibromochloropropane							
	None detected			None detected		Not analyzed	
Semivolatiles Halogenated Organics							
Hexachlorocyclopentadiene	None detected			None detected		None detected	
Organochlorine Pesticides							
Aldrin	None detected			0/31	BCRL 4.0	None detected	
Chlordane				1/31			0.30
Dichlorodiphenylethane				0/31	BCRL		0.60-2.0
Dichlorodiphenyltrichloroethane				0/31	BCRL		0.3-0.60
Dieldrin				0/31	BCRL		0.5-0.60
Endrin				0/31	BCRL		0.30
Isodrin				0/31	BCRL		0.30-0.50
				0/31	BCRL		0.30
Arsenic (IL=CRL-10)							
	None detected			None detected		Not analyzed	
Mercury (IL=CRL-0.10)							
	None detected			None detected		Not analyzed	
ICP Metals							
Cadmium (IL=1.0-2.0)	0/12	BCRL	0.66-0.74	0/32	BCRL	0/9	BCRL 0.66-0.74
Chromium (IL=25-40)	7/12	13-18	5.2-6.5	18/32	8.1-19	9/9	9.3-23 5.2-6.5
Copper (IL=20-55)	5/12	6.5-11	4.7-4.9	29/32	6.1-15	7/9	6.1-10 4.7-4.9
Lead (IL=25-40)	4/12	11-25	8.4-13	13/32	11-53	5/9	11-23 8.4-13
Zinc (IL=60-80)	9/12	11-55	8.7-9.5	32/32	17-74	9/9	28-49 8.7-9.5

BCRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.

/3 = Phase II program not conducted.

* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.1-1. Summary of Soils/Sediments Analytical Results in Southern Study Area. Page 17 of 17.

Site 12-UNC, Monsource Area						
Total Borings Total Samples	Phase I Analyses		Phase II Analyses			
	29	30	7	24		
Analytical Groups and Analytes Detected	Frequency of Detections / 1	Range (ug/g)	Frequency of Detections / 2	Range (ug/g)	Frequency of Detections / 2	Range (ug/g)
CRL						
<u>Volatiles Halogenated Organics</u>	None detected		None analyzed			
1,1,1,2-tetrachloroethane*						
1,1,1-trichloroethane						
Carbon tetrachloride						
Chloroform						
Methylene chloride						
Tetrachloroethylene						
<u>Volatiles Hydrocarbons</u>	None detected		None detected			
Dicyclopentadiene						
Methylisobutyl ketone						
<u>Volatiles Aromatic Organics</u>	None detected		Not analyzed			
Toluene						
<u>Dibromochloropropane</u>	1/30	0.03	0.005-0.014	1/12	0.65	0.005
<u>Semivolatiles Halogenated Organics</u>	None detected		None detected			
Hexachlorocyclopentadiene						
<u>Organochlorine Pesticides</u>	None detected		None detected			
Aldrin						
Chlordane						
Dieldrin						
Dichlorodiphenylethane						
Dichlorodiphenyltrichloroethane						
Endrin						
Isodrin						
<u>Arsenic (IL=CRL-10)</u>	None detected		None detected			
<u>Mercury (IL=CRL-0.10)</u>	None detected		None detected			
<u>ICP Metals</u>						
Cadmium (IL=1.0-2.0)	0/30	BCRL	0.66-0.74	0/12	BCRL	0.66-0.74
Chromium (IL=25-60)	25/30	8.1-19	5.2-6.5	12/12	8.3-29	5.2-6.5
Copper (IL=20-35)	14/30	6.1-12	4.7-4.9	7/12	6.2-13	4.7-4.9
Lead (IL=25-60)	8/30	13-120	8.4-13	7/12	12-17	8.4-13
Zinc (IL=60-80)	29/30	21-59	8.7-9.5	12/12	32-79	8.7-9.5

BCRL = Below Certified Reporting Limit.

IL = Indicator Level.

ug/g = Micrograms per gram

/1 = Fraction represents the total number of detections of an analyte in relation to the number of analyses conducted in a distinct sample. This value does not include multiple detections of a specific analyte in the same sample, which occasionally has occurred when more than one analytical method has been used.

/2 = Certified Reporting Limit (CRL), or detection limits used among laboratories conducting analyses for specific sites shown on table.
* = Tentatively Identified Compound: The "detection limit" is 10% of the internal standard for the method used. There is no CRL value.

Table SSA 2.2-1 Summary of Surface Water Investigations in the Southern Study Area. Page 1 of 1.

PRIOR INVESTIGATIONS	SCOPE OF WORK	NUMBER OF SITES SAMPLED	NOTES
Historical Data 1975	3600 Monitoring Program - a surveillance program initiated in 1975 to monitor both surface and groundwater to satisfy the requirements of the Cease and Desist Order (No. 197) issued by the State of Colorado, this program was replaced by the Task 4 Monitoring Programs	14	Data from this program has been summarized onto the USATHAMA database and referenced as "historical data" in ESE's Final Initial Screening Program Report, V.1, 1987, Task 4. All sites but one from this program were resampled under Task 4 and 44.
Shell Chemical Co. 1980	A program to characterize contamination present in storm water runoff	21	Sites were identified by location of runoff.
Spaine and Gregg 1983	A water quality investigation of the South Plants area runoff	31	Sites were identified by 9 watersheds or exit paths for storm runoff.
USAFWES, 1984 (Meyers and Gregg)	A report summarizing the results from a sampling and analysis program to determine the horizontal and vertical extents of contamination in lake sediments in Lake Ladoga and Lake Mary	3	Only lake water samples were taken during this program.
James & Moore 1985	A technical program for the NMA Southern Tier Contamination Survey which included surface water samples from various canals, ditches, streams, ponds and chemical analyses on all surface water samples for remedial action	9	Canals/ditches were sampled to obtain background information, define nature of pollution from sources, and determine fate and extent of migration of pollutants in streams. Ponds were sampled to characterize possible contaminant accumulation.
ESE Initial Screening Program, Fiscal Year 1986, (Task 4)	A one year groundwater and surface water surveillance program capable of satisfying the various regulatory requirements, develop a litigation-quality database, and assess the nature and extent of groundwater and surface water contamination	81	Under Task 4, the surface water portion of the program at NMA was designed to monitor the surface water entering, leaving, and stored on NMA.
ESE Final Screening Program, Fiscal Year 1986, (Task 4)	Same as Initial Screening Program - FY 1986	151	This report was generated in conjunction with ESE's Initial Screening Program Report and represents a continuation of sampling within the fiscal year surveillance program. Seven additional sampling sites were added.
ESE, Water Remedial Investigation, Fiscal Year 1987, (Task 44)	A semiannual and/or quarterly ground and surface water monitoring program capable of satisfying the various regulatory requirements, developing litigation quality data to be added to the current database, and assessing the extent and nature of contamination	211	This program, conducted under Task 44, further assess the distribution and concentration levels of contaminants defined under Task 4. Six sampling sites were added.

1 From these investigations, only data from samples collected within the Southern Study Area or from near the South Plants/Southern Study Area border were used in Section 2 and 3 of this study.

Table SSA 2.2-2 Summary of Detected Analytes - Surface Water Investigations. Page 1 of 5

ESE Investigations, Tasks 4 and 4A, 1986 and 1987

Surface Water Sampling Location ¹	ESE 1-1			ESE 1-3			ESE 2-4			ESE 2-5			ESE 2-6		
	Frequency of Detections ³	Range ⁴ (mean) ⁶		Frequency of Detections	Range (mean)		Frequency of Detections	Range (mean)		Frequency of Detections	Range (mean)		Frequency of Detections	Range (mean)	
Volatiles Halogenated Organics															
<u>Chloroform</u>	0/5	BCRL ⁵		0/1	BCRL		1/4	1d(4.5)		0/3	BCRL		1/1	5.8	
1,1,1-trichloroethane	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
Carbon tetrachloride	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
tetrachloroethylene	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
Chlorobenzene	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
Methylene chloride	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
Volatiles Hydrocarbons															
<u>Dicyclopentadiene</u>	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
Methylisobutyl ketone	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
Volatiles Aromatic Organics															
<u>Benzene</u>	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
<u>Toluene</u>	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
Organosulfur Compounds															
<u>Benzothiazole</u>	0/2	BCRL		NA			0/2	BCRL		0/2	BCRL		0/1	BCRL	
Organophosphorous Compounds															
<u>Dimethylmethyl phosphonate</u>	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
Dibromochloropropane															
<u>Dibromochloropropane</u>	0/5	BCRL		1/1	0.28		0/4	BCRL		0/3	BCRL		0/1	BCRL	
Organochlorine Pesticides															
<u>Aldrin</u>	0/5	BCRL		1/1	0.09		0/4	BCRL		3/3	0.36-3.2(0.94)		1/1	0.17	
<u>Dieldrin</u>	0/5	BCRL		1/1	2.2		0/4	BCRL		3/3	0.74-12(2.1)		1/1	1.1	
<u>Endrin</u>	0/5	BCRL		1/1	0.081		0/4	BCRL		1/3	4.4(1.5)		1/1	0.11	
<u>Isodrin</u>	0/5	BCRL		0/1	BCRL		0/4	BCRL		0/3	BCRL		0/1	BCRL	
<u>Arsenic</u>	1/2	2.6(1.3)		NA ²			1/1	10		1/2	16(8)		0/1	BCRL	
ICP Metals															
<u>Cadmium</u>	0/1	BCRL		NA			0/1	BCRL		0/2	BCRL		0/1	BCRL	
<u>Copper</u>	0/1	BCRL		NA			0/1	BCRL		0/2	BCRL		0/1	BCRL	
<u>Lead</u>	0/1	BCRL		NA			0/1	BCRL		0/2	BCRL		0/1	BCRL	
<u>Zinc</u>	0/1	BCRL		NA			0/1	BCRL		0/2	BCRL		0/1	BCRL	

NOTES:

- 1) See also Figures SSA 2.2-1 through SSA 2.2-8 for sampling locations
- 2) NA = Not Analyzed
- 3) Total detections/total number of samples analyzed for this analyte at this site
- 4) Units in ug/l (micrograms per liter)
- 5) BCRL = Below Certified Reporting Limits
- 6) Parenthical represents adjusted geometric mean of the range
- 7) Samples from ESE 1-6, ESE 2-1, ESE 2-3, ESE 2-7, ESE 2-8, ESE 11-6, ESE 12-5 had no reported detections

Table SSA 2.2-2 Summary of Detected Analytes - Surface Water Investigations. Page 2 of 3

ES& Investigations, Tasks 4 and 44, 1986 and 1987

Surface Water Sampling Location ¹ ANALYTE GROUPS	ES& 7-1			ES& 7-2			ES& 8-2			ES& 11-1			ES& 11-2		
	Frequency of Detections ³	Range ⁴ (mean) ⁶		Frequency of Detections	Range (mean)		Frequency of Detections	Range (mean)		Frequency of Detections	Range (mean)		Frequency of Detections	Range (mean)	
<u>Volatiles Halogenated Organics</u>															
Chloroform	0/4	BCRL ⁵		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
1,1,1-Trichloroethane	0/4	BCRL		0/5	BCRL		0/3	BCRL		2/5	1.9-2.9(0.95)		0/4	BCRL	
Carbon tetrachloride	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
Tetrachloroethylene	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
Chlorobenzene	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
Methylene chloride	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
<u>Volatiles Hydrocarbons</u>															
Dicyclopentadiene	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
Methylisobutyl ketone	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
<u>Volatiles Aromatic Organics</u>															
Benzene	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
Toluene	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
<u>Organosulfur Compounds</u>															
Benzothiazole	1/2	1.8(0.88)		0/2	BCRL		0/1	BCRL		1/2	12(6.0)		0/2	BCRL	
<u>Organophosphorous Compounds</u>															
Dimethylmethyl phosphonate	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/4	BCRL	
<u>Dibromochloropropane</u>															
<u>Organochlorine Pesticides</u>															
Aldrin	0/4	BCRL		0/5	BCRL		0/3	BCRL		1/5	0.2(0.05)		0/3	BCRL	
Dieldrin	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/3	BCRL	
Endrin	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/3	BCRL	
Isodrin	0/4	BCRL		0/5	BCRL		0/3	BCRL		0/5	BCRL		0/3	BCRL	
Arsenic	0/2	BCRL		0/2	BCRL		0/1	BCRL		1/2	4.6(2.3)		1/2	4.2(2.1)	
<u>ICP Metals</u>															
Chromium	1/2	13(6.7)		1/2	18(9.1)		0/1	BCRL		0/2	BCRL		1/2	49(24)	
Copper	0/2	BCRL		0/2	BCRL		0/1	BCRL		0/2	BCRL		2/2	11-13(12)	
Lead	0/2	BCRL		1/2	41(21)		0/1	BCRL		0/2	BCRL		1/2	76(38)	
Zinc	1/2	190(96)		0/2	BCRL		1/1	74		1/2	22(11)		1/2	150(77)	

NOTES:

- 1) See also Figures SSA 2.2-1 through SSA 2.2-8 for sampling locations
- 2) NA = Not Analyzed
- 3) Total detections/total number of samples analyzed for this analyte at this site
- 4) Units in ug/l (micrograms per liter)
- 5) BCRL = Below Certified Reporting Limits
- 6) Parenthetical represents adjusted geometric mean of the range
- 7) Samples from ES& 1-4, ES& 2-1, ES& 2-3, ES& 2-7, ES& 2-8, ES& 11-4, ES& 12-5 had no reported detections

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Table SSA 2.2-2 Summary of Detected Analytes - Surface Water Investigations. Page 3 of 5

Surface Water Sampling Location ¹ ANALYTE GROUPS	ESF Investigations, Tanks 4 and 46, 1986 and 1987							
	ESF 11-3		ESF 12-1		ESF 12-2		ESF 12-4	
	Frequency of Detections ³	Range ⁶ (mean) ⁶	Frequency of Detections	Range (mean)	Frequency of Detections	Range (mean)	Frequency of Detections	Range (mean)
<u>Volatiles Halogenated Organics</u>								
Chloroform	0/1	NCRL ⁵	0/4	BCRL	0/3	BCRL	0/3	BCRL
1,1,1-Trichloroethane	0/1	NCRL	0/4	BCRL	0/3	BCRL	0/3	BCRL
Carbon tetrachloride	0/1	NCRL	0/4	BCRL	0/3	BCRL	0/3	BCRL
Tetrachloroethylene	0/1	NCRL	0/4	BCRL	0/3	BCRL	0/3	BCRL
Chlorobenzene	0/1	NCRL	0/4	BCRL	0/3	BCRL	0/3	BCRL
Methylene chloride	0/1	BCRL	0/4	BCRL	0/3	BCRL	0/3	BCRL
<u>Volatiles Hydrocarbons</u>								
Dicyclopentadiene	0/1	NCRL	0/4	BCRL	0/3	BCRL	0/3	BCRL
Methylisobutyl ketone	0/1	NCRL	0/4	BCRL	0/3	BCRL	0/3	BCRL
<u>Volatiles Aromatic Organics</u>								
Benzene	0/1	NCRL	0/4	BCRL	0/3	BCRL	0/3	BCRL
Toluene	0/1	NCRL	0/4	NCRL	1/3	22(7.2)	0/3	BCRL
<u>Organosulfur Compounds</u>								
Benzothiazole	1/1	2.1	0/1	NCRL	0/1	NCRL	0/1	BCRL
<u>Organophosphorus Compounds</u>								
Dimethylmethyl phosphonate	0/1	NCRL	0/4	NCRL	0/3	BCRL	0/3	BCRL
<u>Dibromochloropropane</u>								
0/1	NCRL	0/4	0/4	NCRL	0/3	NCRL	0/2	BCRL
<u>Organochlorine Pesticides</u>								
Aldrin	0/1	NCRL	1/4	0.1(0.025)	0/3	NCRL	0/2	BCRL
Dieldrin	0/1	NCRL	0/4	NCRL	0/3	NCRL	0/2	BCRL
Endrin	0/1	NCRL	0/4	NCRL	0/3	NCRL	0/2	BCRL
Isodrin	0/1	NCRL	0/4	NCRL	0/3	BCRL	0/2	BCRL
Arsenic	0/1	BCRL	1/1	2.8	0/1	BCRL	1/1	3.8
<u>ICP Metals</u>								
Chromium	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Copper	0/1	BCRL	0/1	BCRL	0/1	BCRL	1/1	1.3
Lead	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Zinc	0/1	BCRL	0/1	BCRL	1/1	130	1/1	29

NOTES:

- 1) See also Figures SSA 2.2-1 through SSA 2.2-8 for sampling locations
- 2) NA = Not Analyzed
- 3) Total detections/total number of samples analyzed for this analyte at this site
- 4) Units in ug/l (micrograms per liter)
- 5) NCRL = Below Certified Reporting Limits
- 6) Parenthical represents adjusted geometric mean of the range
- 7) Samples from ESF 1-4, ESF 2-1, ESF 2-3, ESF 2-4, ESF 2-5, ESF 2-6, ESF 2-7, ESF 2-8, ESF 11-4, ESF 12-5 had no reported detections

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Table SSA 2.2-2 Summary of Detected Analytes - Surface Water Investigations. Page 4 of 5

Surface Water Sampling Location ¹ ANALYTE GROUPS	Spain and Gregg, 1983				Shell Oil, 1988			
	SC1	SC2	SC3	SC4	SC3	SC3	SC3	SC3
	Frequency of Detections ³	Range ⁴ (mean) ⁶	Frequency of Detections	Range (mean)	Frequency of Detections	Range (mean)	Frequency of Detections	Range (mean)
Volatile Halogenated Organics								
Chloroform	4/4	1.0-19(3.4) ⁸	4/5	2.0-4.0(2.3)	3/3	7.0-130(38) ⁸	1/4	5.0(1.2)
1,1,1-Trichloroethane	NA ²		NA		NA		NA	
Carbon tetrachloride	0/5	NDL ⁵	0/5	BDL	0/4	BDL	3/4	16-170(54)
Tetrachloroethylene	1/5	4.0(0.8)	0/5	BDL	0/4	BDL	0/1	5.0(1.7)
Chlorobenzene	1/5	1.0(0.2)	0/5	BDL	0/4	BDL	0/3	BDL
Methylene chloride	N/A		N/A		N/A		N/A	
Volatile Hydrocarbons								
Dicyclopentadiene	1/5	20(4)	2/5	22-70(10)	0/4	BDL	0/1	BDL
Methylisobutyl ketone	0/5	NDL	1/5	12.0(2.4)	1/4	40(10)	0/1	BDL
Volatile Aromatic Organics								
Benzene	2/4	1.0, 1.0(0.5) ⁸	2/5	1.0-3.0(0.69)	4/4	2.0-40(10) ⁸	1/3	34(11)
Toluene	1/5	3.0(0.6)	0/5	NDL	0/4	BDL	0/3	BDL
Organosulfur Compounds								
Benzothiazole	NA		NA		NA		NA	
Organophosphorous Compounds								
Dimethylmethyl phosphonate	NA		NA		NA		2/3	3.0-4.0(2.3)
Dibromochloropropane								
	0/5	NDL	0/5	NDL	0/4	BDL	0/3	BDL
Organochlorine Pesticides								
Aldrin	1/5	0.26(0.052)	5/5	2.7-3.7(3.3)	0/4	BDL	0/2	BDL
Dieldrin	5/5	0.48-1.9(0.68)	4/5	20-30(19)	3/5	0.54-1.3(0.45)	2/3	0.9-1.0(0.63)
Endrin	1/4	0.94(0.24)	2/5	0.52-1.4(0.34)	0/4	BDL	0/2	BDL
Isodrin	0/5	NDL	5/5	1.1-5.6(3.4)	1/5	0.22(0.044)	NA	
Arsenic	NA						NA	
ICP Metals								
Cadmium	0/3	NDL	0/3	BDL	0/3	BDL	NA	
Chromium	NA		NA		NA		NA	
Copper	0/3	NDL	0/5	BDL	0/3	BDL	0/1	
Lead	NA		NA		NA		0/1	
Zinc	NA		NA		NA		NA	

NOTES:

- 1) See also Figures SSA 2.2-1 through SSA 2.2-8 for sampling locations
- 2) NA = Not Analyzed
- 3) Total detections/total number of samples analyzed for this analyte at this site
- 4) Units in µg/l (micrograms per liter)
- 5) NDL = Below Certified Reporting Limits
- 6) Parenthetical represents adjusted geometric mean of the range
- 7) Range and mean do not include anomalously high detections from a single sampling event in May, 1983. See text for specific concentrations.

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Table SSA 2.2-2 Summary of Detected Analytes - Surface Water Investigations. Page 5 of 5

Surface Water Sampling Location ¹ ANALYTE GROUPS	Dames and Moore, 1985					DAMES & MOORE, 1984		
	DM1 Concentration ⁴	DM10 Concentration	DM15 Concentration	DM7 Concentration		LL24-2 Concentration	LL24-6 Concentration	LM5 Concentration
<u>Volatile Halogenated Aromatics</u>								
Chloroform	NA ²	NA	NA	NA		NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA		NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA		NA	NA	NA
Chlorobenzene	NA	NA	NA	NA		NA	NA	NA
Tetrachloroethylene	NA	NA	NA	NA		NA	NA	NA
Methylene chloride	300	90	30	300		0.02	0.01	0.03
<u>Volatile Hydrocarbons</u>								
4-Hydroxy-4-methyl-2-pentanone ^{6*}	NA	2.0	NA	NA				
2-Pentanone ⁶	NA	3.0	NA	NA				
Dicyclopentadiene	NA	NA	NA	NA		NA	NA	NA
Methylisobutyl ketone	NA	NA	NA	NA		NA	NA	NA
<u>Volatile Aromatic Compounds</u>								
Benzene	NA	NA	2.0	NA		NA	NA	NA
Toluene	3.0	NA	NA	NA		NA	NA	NA
<u>Organophosphorous Compounds</u>								
Dimethylmethyl phosphonate	NA	NA	NA	NA		NA	NA	NA
<u>Dibromochloropropane</u>								
<u>Organochlorine Pesticides</u>								
Aldrin	BDL ⁴	BDL	0.23	BDL		BDL	BDL	BDL
Dieldrin	BDL	BDL	BDL	BDL		BDL	BDL	0.02
Endrin	BDL	BDL	BDL	BDL		BDL	BDL	BDL
Isodrin	NA	NA	NA	NA		BDL	BDL	BDL
<u>Arsenic</u>								
	10	9	BDL	BDL		BDL	BDL	BDL
<u>ICP Metals</u>								
Chromium	BDL	BDL	NA	6.0		NA	NA	NA
Copper	8.0	3.0	30	5.0		NA	NA	NA
Lead	11	14	12	17		NA	NA	NA
Zinc	BDL	BDL	BDL	BDL		NA	NA	NA
Cadmium	BDL	BDL	BDL	BDL		NA	NA	NA

NOTES:

- 1) See also Figures SSA 2.2-1 through SSA 2.2-8 for sampling locations
- 2) NA = Not Analyzed
- 3) Units in ug/g (micrograms per liter)
- 4) BDL = Below Detection Level
- 5) Single sampling event
- 6) Unique to Dames & Moore Investigation
- 7) Samples from DM 17, DM 18, DM 19, DM 8, DM 9 had no detections
- * Tentatively Identified Compound

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 010211(A)			WELL 010241(A)			WELL 010311(A)			WELL 010321(A)		
	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections
Volatiles Halogenated Organics												
1,1-Dichloroethene	04	BCRL	04	04	BCRL	04	NA	BCRL	04	04	BCRL	02
1,2-Dichloroethene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
1,1-Dichloroethylene	04	BCRL	04	04	BCRL	04	1/1	3.9	04	04	BCRL	02
1,1,2-Trichloroethene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Carbon Tetrachloride	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Chlorobenzene	1/4	1.30.53	04	04	BCRL	04	01	BCRL	1/4	2.80.73	04	02
Chloroform	04	BCRL	04	04	BCRL	04	1/1	4.9	04	04	BCRL	02
1,1,2-Dichloroethylene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Tetrachloroethylene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Trichloroethylene	04	BCRL	04	04	BCRL	04	1/1	0.86	04	04	BCRL	02
Methylene Chloride	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Volatiles Hydrocarbons												
Bicycloheptadiene	NA		NA	NA		NA	NA		NA	NA		NA
Dicyclopentadiene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Volatiles Aromatic Organics												
Benzene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Ethylbenzene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
m-Xylene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
o- and p-Xylene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Toluene	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Organosulfur Compounds (Mustard Related)												
1,4-Oxathiane	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02
Dithiane	04	BCRL	04	04	BCRL	04	01	BCRL	04	04	BCRL	02

NOTES:

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BCRL = Below Certified Reporting Limits

(mean) = Range is represented by the

adjusted geometric mean

ug/l = micrograms per liter

(1/A) = Well in Water Bearing Zone 1A

(1) = Well in Water Bearing Zone 1

(2) = Well in Water Bearing Zone 2

(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(H) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections (for a given analyte) per total samples analyzed for that analyte

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 0102N11(A)			WELL 0102N11(B)			WELL 0102N11(C)			WELL 0102N11(D)			WELL 0102N11(E)		
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS
Diquat/Disodium Herbicide related															
Chlorophenylmethyl sulfide	04	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	03	BCRL	03
Chlorophenylmethyl sulfone	04	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	4.7-8.0(4.1)	03	BCRL	03
Chlorophenylmethyl sulfoxide	04	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	03	BCRL	03
Diquat/Disodium Carbanilate (338 related)															
Diisopropylmethyl phosphonate	04	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	03	BCRL	03
Dibromochloroacetone															
Dibromochloroacetone	04	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	03	BCRL	03
Diquat/Disodium Phosphides															
Aldrin	03	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	03	BCRL	03
Dichlorodiphenylmethane	04	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	02	BCRL	02
Dichlorodiphenylmethane	04	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	02	BCRL	02
Dieldrin	04	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	0.000-0.002	03	BCRL	03
Endrin	04	BCRL	04	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	03	BCRL	03
Azinphos	1/4	120(8)	1/3	7.1(2.4)	01	BCRL	01	BCRL	04	BCRL	04	BCRL	02	BCRL	02
Mentax	04	BCRL	03	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	02	BCRL	02
ICP Metals															
Cadmium	04	BCRL	03	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	02	BCRL	02
Chromium	24	6.4-11(4.2)	1/3	10(3.4)	01	BCRL	01	BCRL	04	BCRL	04	BCRL	02	BCRL	02
Copper	1/4	8.3(2.1)	1/3	15(4.8)	01	BCRL	01	BCRL	04	BCRL	04	BCRL	1/2	11(3.8)	02
Lead	04	BCRL	03	BCRL	01	BCRL	01	BCRL	04	BCRL	04	BCRL	02	BCRL	02
Zinc	3/4	29-100(37)	1/3	20(10.3)	01	BCRL	01	BCRL	1/4	BCRL	1/4	34(5.8)	02	BCRL	02

NOTES:

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 BCRL = Below Certified Reporting Limits
 (mean) = Range is represented by the
 adjusted geometric mean
 up/8 = micrograms per liter
 (1A) = Well in Water Bearing Zone 1A
 (1) = Well in Water Bearing Zone 1
 (2) = Well in Water Bearing Zone 2
 (3) = Well in Water Bearing Zone 3
 (4) = Well in Water Bearing Zone 4
 (N) = Laboratory holding time exceeded
 FREQUENCY OF DETECTIONS = Total detections for a given analyte per total samples analyzed for that analyte

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 02014 (1A)			WELL 02020 (1A)			WELL 02026 (1A)			WELL 02031 (A)			WELL 13002 (1A)		
	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections
Volatiles Halogenated Organics															
1,1-Dichloroethane	0/1	BCRL	3/4	0/3	1.4-3.3(1.7)	0/3	0/4	BCRL	0/4	0/4	BCRL	0/3	0/4	BCRL	0/3
1,2-Dichloroethane	0/1	BCRL	0/4	0/3	BCRL	0/3	0/4	BCRL	0/4	0/4	BCRL	0/3	0/4	BCRL	0/3
1,1-Dichloroethylene	0/1	BCRL	0/4	0/3	BCRL	0/3	0/4	BCRL	0/4	0/4	BCRL	0/3	0/4	BCRL	0/3
1,1,2-Trichloroethane	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Carbon Tetrachloride	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Chlorobenzene	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Chloroform	1/1	51	3/4	3/4	7.7-32(9.5)	2/4	0/4	1.4-2.8(1.0)	0/4	0/4	1.8(0.47)	0/4	0/4	BCRL	0/4
1,1,2-Dichloroethylene	0/1	BCRL	1/4	0/4	1.4(0.34)	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Tetrachloroethylene	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Trichloroethylene	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Methylene Chloride	0/1	BCRL	0/4	0/3	BCRL	0/3	0/4	BCRL	0/4	0/4	BCRL	0/3	0/4	BCRL	0/3
Volatiles Halocarbonates															
Bicycloheptadiene	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA
Dicyclopentadiene	0/1	BCRL	0/4	0/4	BCRL	1/4	0/4	133.3	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Volatiles Aromatic Organics															
Benzene	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Ethylbenzene	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
m-Xylene	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
o- and p-Xylene	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Toluene	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Organosulfur Compounds (flameless related)															
1,4-Oxathiane	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Dithiane	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4

NOTES:

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(mean) - Range is represented by the

adjusted geometric mean

ug/l = micrograms per liter

(1A) = Well in Water Bearing Zone 1A

(1) = Well in Water Bearing Zone 1

(2) = Well in Water Bearing Zone 2

(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(P) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 02014 (1A)	WELL 02020 (1A)	WELL 02025 (1A)	WELL 02031 (1A)	WELL 10002 (1A)
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS
Organosulfur Compounds (Herbicide related)					
Chlorophenylmethyl sulfide	0/1	BCRL	0/4	BCRL	0/4
Chlorophenylmethyl sulfone	0/1	BCRL	0/4	BCRL	0/4
Chlorophenylmethyl sulfonide	0/1	BCRL	0/4	BCRL	0/4
Organophosphorus Compounds (GB related)					
Diisopropylmethyl phosphonate	0/1	BCRL	0/4	BCRL	0/4
Dihomocyclohexene	0/1	BCRL	0/4	0.42(0.10)	0/4
Organochlorine Pesticides					
Alachlor	0/1	BCRL	0/4	BCRL	0/4
Dichlorodiphenylmethane	0/1	BCRL	0/4	0.07(0.02)	0/4
Dichlorodiphenyltrichloroethane	0/1	BCRL	0/4	0.24(0.05)	0/3
Dieldrin	0/1	BCRL	4/4	0.081-0.43(0.15)	0/4
Endrin	0/1	BCRL	0/4	BCRL	0/4
Azinphos	0/1	BCRL	1/4	0.11(1.5)	0/1
Mesqulaz	0/1	BCRL	0/4	BCRL	0/1
ICP Metals					
Cadmium	0/1	BCRL	0/4	BCRL	0/1
Chromium	0/1	BCRL	0/4	BCRL	0/1
Copper	0/1	BCRL	0/4	BCRL	0/1
Lead	0/1	BCRL	2/4	24-45(16)	0/1
Zinc	1/1	34	3/4	66-100(63)	1/1

NOTES:

NA - Not Analyzed

BCRL - Below Certified Reporting Limits

(mean) - Range is represented by the

adjusted geometric mean

ug/l - micrograms per liter

(1A) - Wall in Water Bearing Zone 1A

(1) - Wall in Water Bearing Zone 1

(2) - Wall in Water Bearing Zone 2

(3) - Wall in Water Bearing Zone 3

(4) - Wall in Water Bearing Zone 4

(A) - Laboratory holding time exceeded

FREQUENCY OF DETECTIONS - Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 12002(1/A)			WELL 01014(1)			WELL 01027(1)			WELL 02008(1)		
	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l
Volatiles Halogenated Organics												
1,1-Dichloroethane	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
1,2-Dichloroethane	0/4	BCRL	1/3	8.0(2.7)	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
1,1-Dichloroethylene	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
1,1,2-Trichloroethane	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Carbon Tetrachloride	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Chlorobenzene	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Chloroform	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
1,1,2-Dichloroethylene	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Tetrachloroethylene	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Trichloroethylene	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Methylene Chloride	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Volatiles Hydrocarbons												
Bicycloheptadiene	NA	BCRL	NA		NA		NA		NA		NA	
Dicyclopentadiene	0/4	BCRL	3/3	1200-3400(1800)	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Volatiles Aromatic Organics												
Benzene	0/4	BCRL	3/3	150000-300000(220000)	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Ethylbenzene	0/4	BCRL	2/3	270-280(180)	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
m-Xylene	0/4	BCRL	3/3	700-1800(1000)	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
o- and p-Xylene	0/4	BCRL	3/3	1300-2800(1800)	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Toluene	0/4	BCRL	3/3	720-830(790)	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Organosulfur Compounds (Mixed related)												
1,4-Oxathiane	0/4	BCRL	1/3	4.3(1.4)	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Dithiane	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL

NOTES:

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adjusted geometric mean

ug/l = micrograms per liter

(1A) = Well in Water Bearing Zone 1A

(1) = Well in Water Bearing Zone 1

(2) = Well in Water Bearing Zone 2

(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(H) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

Page 6 of 22

	WELL 12002 (1A)		WELL 01014 (1)		WELL 01027 (1)		WELL 01028 (1)	
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)
Organosulfur Compounds (Metolide related)								
Chlorophenylmethyl sulfide	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL
Chlorophenylmethyl sulfone	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL
Chlorophenylmethyl sulfoxide	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL
Organophosphorus Compounds (GB related)								
Diisopropylmethyl phosphonate	0/4	BCRL	0/3	BCRL	0/2	BCRL	1/1	41
Dibromochloropropane	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL
Organochlorine Pesticides								
Aldrin	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL
Dichlorodiphenylmethane	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL
Dichlorodiphenyltrichloroethane	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL
Dieldrin	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL
Endrin	0/4	BCRL	0/3	BCRL	0/2	BCRL	0/1	BCRL
Aroclor	0/2	BCRL	0/2	BCRL	1/2	5.7(2.8)	1/1	16
Mercapt	0/2	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL
ICP Metals								
Cadmium	0/2	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL
Chromium	1/2	17(8.6)	0/2	BCRL	0/2	BCRL	0/1	BCRL
Copper	0/2	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL
Lead	0/2	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL
Zinc	2/2	30-33(31)	0/2	BCRL	2/2	55-66(60)	1/1	46

NOTES:

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(mean) - Range is represented by the
adjusted geometric mean

ug/l - micrograms per liter

(1A) - Well in Water Bearing Zone 1A

(1) - Well in Water Bearing Zone 1

(2) - Well in Water Bearing Zone 2

(3) - Well in Water Bearing Zone 3

(4) - Well in Water Bearing Zone 4

(N) - Laboratory holding time exceeded

FREQUENCY OF DETECTIONS - Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 01002(1)		WELL 01003(1)		WELL 01003(1)		WELL 00008(1)		WELL 00011(1)	
	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l
Volatiles Halogenated Organics										
1,1-Dichloroethane	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
1,2-Dichloroethane	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
1,1-Dichloroethylene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
1,1,2-Trichloroethane	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Carbon Tetrachloride	2/2	4.7-5.7(5.2)	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Chlorobenzene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Chloroform	2/2	28-32(29)	0/3	BCRL	0/1	BCRL	2/2	0.1-4.2(0.1)	1/1	3.3
1,1,2-Dichloroethylene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Trichloroethylene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Trichloroethylene	2/2	4.3-5.1(4.7)	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Methylene Chloride	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Volatiles Hydrocarbons										
Bicycloheptadiene	NA		NA		NA		NA		NA	
Dicyclopentadiene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Volatiles Aromatic Organics										
Benzene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Ethylbenzene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
m-Xylene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
o- and p-Xylene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Toluene	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Organosulfur Compounds (Standard related)										
1,4-Dithiane	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL
Dithiane	2/2	1.6-2.2(1.9)	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL

NOTES:

NA = Not Analyzed
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 (mean) = Range is represented by the
 adjusted geometric mean
 ug/l = micrograms per liter
 (1A) = Well in Water Bearing Zone 1A
 (1) = Well in Water Bearing Zone 1
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 (3) = Well in Water Bearing Zone 3
 (4) = Well in Water Bearing Zone 4
 (H) = Laboratory holding time exceeded
 FREQUENCY OF DETECTIONS = Total detections

FREQUENCY OF DETECTIONS = Total detections

	WELL 010200(U)		WELL 010301(U)		WELL 010301(U)		WELL 010301(U)		WELL 010301(U)		WELL 010301(U)	
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)
Organochlorine Compounds (Excluded)												
Chlorophenylmethyl sulfide	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Chlorophenylmethyl sulfone	2/2	120-180(140)	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Chlorophenylmethyl sulfoxide	1/2	5(2.5)	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Organophosphorus Compounds (Excluded)												
Diisopropylmethyl phosphonate	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Dibromochloropropane												
	2/2	2.2-2.8(2.5)	0/3	BCRL	0/1	BCRL	2/2	0.02-0.03(0.06)	1/1	1.1		
Organochlorine Pesticides												
Aldrin	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Dichlorodiphenylethane	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Dichlorodiphenylchloroethane	0/2	BCRL	1/3	0.13(0.04)	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Dieldrin	2/2	0.13-0.28(0.18)	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Endrin	2/2	0.06-0.08(0.07)	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Aroclor	0/2	BCRL	1/3	9.8(3.3)	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Mercury	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
ICP Metals												
Cadmium	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Chromium	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Copper	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Lead	0/2	BCRL	0/3	BCRL	0/1	BCRL	0/2	BCRL	0/1	BCRL	0/1	BCRL
Zinc	1/2	35(17)	2/3	22.38(19)	1/1	110	1/2	380(160)	1/1	47		

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 adjusted geometric mean
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 (H) = Laboratory holding time exceeded

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 01047 (1)			WELL 01558 (1)			WELL 01557 (1)			WELL 01558 (1)		
	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l
Volatiles Halogenated Organics												
1,1-Dichloroethane	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
1,2-Dichloroethane	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
1,1-Dichloroethylene	0/1	BCRL	NA	BCRL	NA	BCRL	NA	BCRL	NA	BCRL	NA	BCRL
1,1,2-Trichloroethane	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Carbon Tetrachloride	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Chlorobenzene	1/1	3.5	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Chloroform	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
1,1,2-Dichloroethylene	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Tetrachloroethylene	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Trichloroethylene	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Methylene Chloride	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Volatiles Hydrocarbons												
Bicycloheptadiene	NA	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Dicyclopentadiene	0/1	BCRL	1/1	1000(A)	1/1	1000(A)	1/1	800(A)	1/1	200(A)	1/1	200(A)
Volatiles Aromatic Organics												
Benzene	0/1	BCRL	1/1	80,000	1/1	80,000	1/1	80,000	1/1	800,000	1/1	800,000
Ethylbenzene	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
m-Xylene	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
o- and p-Xylene	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Toluene	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Organosulfur Compounds (Mustard related)												
1,4-Oxathiane	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL
Dithiane	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL

NOTES:

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(1A) = Well in Water Bearing Zone 1A

(1) = Well in Water Bearing Zone 1

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(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(A) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections

* dilution factor of 830

** dilution factor of 830

*** dilution factor of 10000

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL D1047(J)			WELL D1556(J)			WELL D1557(J)			WELL D1558(J)		
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS
Organosulfur Compounds (Herbicide related)												
Chlorophenylmethyl sulfide	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Chlorophenylmethyl sulfone	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Chlorophenylmethyl sulfonide	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Organochlorine Compounds (GB related)												
Diisopropylmethyl phosphonate	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Dibromochloropropane												
Dibromochloropropane	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Organochlorine Pesticides												
Aldrin	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Dichlorodiphenylmethane	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Dichlorodiphenylchloroethane	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Dieldrin	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Endrin	0/1	BCRL	0/1	0/1	BCRL (4)	0/1	0/1	BCRL (4)	0/1	0/1	BCRL	0/1
Atrazine	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1
Metolachlor	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1
ICP Metals												
Cadmium	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1
Chromium	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1
Copper	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1
Lead	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1
Zinc	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1	0/1	BCRL	0/1

NOTES:

NA = Not Analyzed

BCRL = Below Certified Reporting Limit

(mean) = Range is represented by the

adjusted geometric mean

ug/l = micrograms per liter

(1A) = Well in Water Bearing Zone 1A

(1) = Well in Water Bearing Zone 1

(2) = Well in Water Bearing Zone 2

(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(4) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 02023 (1)			WELL 02034 (1)			WELL 02037 (1)			WELL 02038 (1)			WELL 02039 (1)		
	Frequency of Detections	Range (mean) in ug/l	Detections	Frequency of Detections	Range (mean) in ug/l	Detections	Frequency of Detections	Range (mean) in ug/l	Detections	Frequency of Detections	Range (mean) in ug/l	Detections	Frequency of Detections	Range (mean) in ug/l	Detections
Volatiles Halogenated Organics															
1,1-Dichloroethane	0/1	BCRL	4/4	3.7-5.7(4.6)	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
1,2-Dichloroethane	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
1,1-Dichloroethylene	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
1,1,2-Trichloroethane	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Carbon Tetrachloride	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Chlorobenzene	0/1	BCRL	0/4	10-16(13)	BCRL	0/4	0/4	1.7(0.43)	0/1	0/1	2.3	0/1	0/1	0/1	0/1
Chloroform	0/1	BCRL	0/4	1.4-1.8(0.74)	BCRL	0/4	0/4	2.8-7.3(3.3)	0/1	0/1	17	0/1	0/1	0/1	0/1
1,1,2-Dichloroethylene	1/1	2.0	2/4	3.7-5.0(4.1)	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Tetrachloroethylene	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Trichloroethylene	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Methylene Chloride	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Volatiles Hydrocarbons															
Bicycloheptadiene	NA		NA	BCRL	BCRL	NA	NA	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Dicyclopentadiene	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Volatiles Aromatic Organics															
Benzene	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Ethylbenzene	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
m-Xylene	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
o- and p-Xylene	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Toluene	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Organosulfur Compounds (Mutated related)															
1,4-Dithiane	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1
Dithiane	0/1	BCRL	0/4	BCRL	BCRL	0/4	0/4	BCRL	0/1	0/1	BCRL	0/1	0/1	0/1	0/1

NOTES:

NA - Not Analyzed
 BCRL - Below Certified Reporting Limits
 (mean) - Range is represented by the
 adjusted geometric mean
 ug/l - micrograms per liter
 (1A) - Well in Water Bearing Zone 1A
 (1) - Well in Water Bearing Zone 1
 (2) - Well in Water Bearing Zone 2
 (3) - Well in Water Bearing Zone 3
 (4) - Well in Water Bearing Zone 4
 (H) - Laboratory holding time exceeded
 FREQUENCY OF DETECTIONS - Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 02022(1)			WELL 02024(1)			WELL 02027(1)			WELL 02034(1)			WELL 02034(2)		
	FREQUENCY OF DETECTIONS	RANGE (mean) (µg/l)	FREQUENCY OF DETECTIONS	FREQUENCY OF DETECTIONS	RANGE (mean) (µg/l)	FREQUENCY OF DETECTIONS	FREQUENCY OF DETECTIONS	RANGE (mean) (µg/l)	FREQUENCY OF DETECTIONS	FREQUENCY OF DETECTIONS	RANGE (mean) (µg/l)	FREQUENCY OF DETECTIONS	FREQUENCY OF DETECTIONS	RANGE (mean) (µg/l)	FREQUENCY OF DETECTIONS
Organophosphorus Compounds (Herbicide related)															
Chlorophenylmethyl sulfide	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Chlorophenylmethyl sulfone	0/1	BCRL	1/4	1/4	3.90 (9.7)	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Chlorophenylmethyl sulfonide	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Organophosphorus Compounds (GB related)															
Disopropylmethyl phosphonate	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Dithiocarbamates															
Diisopropylmethyl phosphonate	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Organochlorine Pesticides															
Aldrin	0/1	BCRL	1/4	1/4	0.140 (0.4)	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Dichlorodiphenylmethane	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Dichlorodiphenylchloroethane	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Dieldrin	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Endrin	0/1	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4	0/4	BCRL	0/4
Acetals															
Acetals	NA		0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3
Mercury															
Mercury	NA		0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3
EC2 Metals															
Cadmium	NA		0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3
Chromium	NA		0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3
Copper	NA		0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3
Lead	NA		0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3	0/3	BCRL	0/3
Zinc	NA		0/3	0/3	26-70 (48)	0/3	0/3	26-70 (48)	0/3	0/3	26-70 (48)	0/3	0/3	26-70 (48)	0/3

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(1A) = Well in Water Bearing Zone 1A

(1) = Well in Water Bearing Zone 1

(2) = Well in Water Bearing Zone 2

(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(1A) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Greenwater Analytical Results for the Southern Study Area

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	WELL 0207(1)			WELL 0208(1)			WELL 0207(1)			WELL 0208(1)			WELL 0208(1)		
	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections
Volatiles Halogenated Organics															
1,1-Dichloroethane	1/1	17	BCRL	0/1	BCRL	BCRL	1/1	60	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
1,2-Dichloroethane	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
1,1-Dichloroethylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Trichloroethane	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
Carbon Tetrachloride	NA	NA	NA	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
Chlorobenzene	1/1	100	BCRL	0/1	BCRL	BCRL	1/1	100	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
Chloroform	1/1	56	BCRL	0/1	BCRL	BCRL	1/1	17	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
1,1,2-Trichloroethylene	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
Tetrachloroethylene	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
Trichloroethylene	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
Methylene Chloride	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
Volatiles Hydrocarbons															
Bicycloheptadiene	0/1	BCRL	BCRL	0/1	BCRL	BCRL	1/1	7.1	0/1	BCRL	BCRL	NA	NA	BCRL	BCRL
Dicyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles Aromatic Organics															
Benzene	0/1	BCRL	BCRL	0/1	BCRL	BCRL	1/1	84	0/1	BCRL	BCRL	1/1	1/1	2.0	2.0
Ethylbenzene	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
m-Xylene	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
o- and p-Xylene	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
Toluene	0/1	BCRL	BCRL	0/1	BCRL	BCRL	0/1	BCRL	0/1	BCRL	BCRL	0/1	0/1	BCRL	BCRL
Organosulfur Compounds (Mustard Listed)															
1,4-Oxathiane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dithiane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

NA = Not Analyzed
 BCRL = Below Certified Reporting Limits
 (mean) = Range is represented by the
 adjusted geometric mean
 ug/l = micrograms per liter
 (1A) = Well in Water Bearing Zone 1A
 (1) = Well in Water Bearing Zone 1
 (2) = Well in Water Bearing Zone 2
 (3) = Well in Water Bearing Zone 3
 (4) = Well in Water Bearing Zone 4
 (H) = Laboratory holding time exceeded
 FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 02507 (1)		WELL 02508 (1)		WELL 02577 (1)		WELL 02578 (1)		WELL 02581 (3)	
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)
Organosulfur Compounds (chloride related)										
Chlorophenylmethyl sulfide	NA		NA		NA		NA		01	BCRL
Chlorophenylmethyl sulfone	NA		NA		NA		NA		01	BCRL
Chlorophenylmethyl sulfoxide	NA		NA		NA		NA		01	BCRL
Organophosphorus Compounds (CB related)										
Diisopropylmethyl phosphonate	NA		NA		NA		NA		01	BCRL
Phenanthrocarbazone										
Phenanthrocarbazone	NA		NA		NA		NA		01	BCRL
Organochlorine Pesticides										
Aldrin	NA		NA		NA		NA		01	BCRL
Dichlorodiphenylethane	NA		NA		NA		NA		01	BCRL
Dichlorodiphenylchloroethane	NA		NA		NA		NA		01	BCRL
Dieldrin	NA		NA		NA		NA		01	BCRL
Endrin	NA		NA		NA		NA		01	BCRL
Azinphos	NA		NA		NA		NA		01	BCRL
Mecoprop	NA		NA		NA		NA		01	BCRL
ICP Metals										
Cadmium	NA		NA		NA		NA		01	BCRL
Chromium	NA		NA		NA		NA		01	BCRL
Copper	NA		NA		NA		NA		01	BCRL
Lead	NA		NA		NA		NA		01	BCRL
Zinc	NA		NA		NA		NA		01	BCRL

NOTES:

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(mean) - Range is represented by the
adjusted geometric mean

ug/l - micrograms per liter

(1A) - Well in Water Bearing Zone 1A

(1) - Well in Water Bearing Zone 1

(2) - Well in Water Bearing Zone 2

(3) - Well in Water Bearing Zone 3

(4) - Well in Water Bearing Zone 4

(M) - Laboratory holding time exceeded

FREQUENCY OF DETECTIONS - Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 01022/23			WELL 01032/23			WELL 01037/23			WELL 01041/23		
	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections	Frequency of Detections	Range (mean) In ug/l	Detections
Volatiles Halogenated Organics												
1,1-Dichloroethene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
1,2-Dichloroethene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
1,1-Dichloroethylene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
1,1,2-Trichloroethane	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Carbon Tetrachloride	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Chlorobenzene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Chloroform	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
1,1,2-Dichloroethylene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Tetrachloroethylene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Trichloroethylene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Methylene Chloride	04	BCRL	1/3	1/3	6.12/3	01	01	BCRL	01	01	BCRL	01
Volatiles Hydrocarbons												
Bicycloheptadiene	NA		NA	NA		NA	NA		NA	NA		NA
Dicyclopentadiene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Volatiles Aromatic Organics												
Benzene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Ethylbenzene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
m-Xylene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
o- and p-Xylene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Toluene	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Organosulfur Compounds (Mustard related)												
1,4-Oxathiane	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01
Dithiane	04	BCRL	03	03	BCRL	01	01	BCRL	01	01	BCRL	01

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 adjusted geometric mean
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 (1) = Well in Water Bearing Zone 1
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 (3) = Well in Water Bearing Zone 3
 (4) = Well in Water Bearing Zone 4
 (H) = Laboratory holding time exceeded
 FREQUENCY OF DETECTIONS = Total detections

	WELL 01022123			WELL 01032123			WELL 01032123			WELL 02021123			WELL 02021123		
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS
Organosulfur Compounds (chloride related)															
Chlorophenylmethyl sulfide	04	BCRL	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Chlorophenylmethyl sulfone	04	BCRL	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Chlorophenylmethyl sulfoxide	04	BCRL	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Organophosphorus Compounds (GB related)															
Diisopropylmethyl phosphonate	14	23(5.8)	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Dibenzodioxins															
Dibenzodioxane	04	BCRL	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Organochlorine Pesticides															
Albin	04	BCRL	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Dichlorodiphenylmethane	04	BCRL	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Dichlorodiphenylchloromethane	04	BCRL	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Dieldrin	04	BCRL	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Endrin	04	BCRL	03	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Atrazine	14	5.7(1.4)	02	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Mercury	04	BCRL	1/2	0.44(0.22)	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
ICP Metals															
Cadmium	04	BCRL	02	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Chromium	14	10(2.6)	02	BCRL	1/1	BCRL	1/1	BCRL	1/1	BCRL	1/1	BCRL	1/1	BCRL	1/1
Copper	04	BCRL	02	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Lead	04	BCRL	02	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01	BCRL	01
Zinc	04	BCRL	02	BCRL	1/1	BCRL	1/1	BCRL	1/1	BCRL	1/1	BCRL	1/1	BCRL	1/1

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(1) = Well in Water Bearing Zone 1

(2) = Well in Water Bearing Zone 2

(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(H) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 0203S123			WELL 0203S123			WELL 12003123			WELL 0202S123			WELL 0202S123		
	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections	Range (mean) In ug/l	Frequency of Detections
Volatiles Halogenated Organics															
1,1-Dichloroethene	4/4	5.2-11(7.5)	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
1,2-Dichloroethene	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
1,1-Dichloroethylene	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
1,1,2-Trichloroethene	1/4	1.1(0.27)	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Carbon Tetrachloride	4/4	5.6-15(8.5)	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Chlorobenzene	1/4	8.6(2.2)	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Chloroform	4/4	160-430(230)	4/4	7.4-8.9(8.0)	0/4	BCRL	0/3	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
1,1,2-Dichloroethylene	1/4	1.3(0.31)	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Tetrachloroethylene	3/4	3.0-3.8(2.4)	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Trichloroethylene	4/4	5.4-11(8.0)	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Methylene Chloride	0/4	BCRL	1/4	8.3(2.1)	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Volatiles Hydrocarbons															
Bicycloheptadiene	NA	BCRL	NA	BCRL	NA	BCRL	NA	BCRL	NA	BCRL	NA	BCRL	NA	BCRL	NA
Dicyclopentadiene	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Volatiles Aromatic Organics															
Benzene	0/4	BCRL	0/4	BCRL	0/4	BCRL	1/4	2.7(0.87)	1/3	8.0(3.8)	0/1	BCRL	0/1	BCRL	0/1
Ethylbenzene	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
m-Xylene	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
o- and p-Xylene	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Toluene	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Organosulfur Compounds (Mutated related)															
1,4-Dithiane	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1
Dithiane	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL	0/1	BCRL	0/1

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 adjusted geometric mean
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 (1A) = Well in Water Bearing Zone 1A
 (1) = Well in Water Bearing Zone 1
 (2) = Well in Water Bearing Zone 2
 (3) = Well in Water Bearing Zone 3
 (4) = Well in Water Bearing Zone 4
 (1A) = Laboratory holding time exceeded
 FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 02035/23		WELL 02038/23		WELL 12000/23		WELL 01002/23		WELL 01001/23	
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)
Organosulfur Compounds (Herbicide related)										
Chlorophenylmethyl sulfide	1/4	4.1(1.0)	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL
Chlorophenylmethyl sulfone	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL
Chlorophenylmethyl sulfonide	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL
Organophosphorus Compounds (GB related)										
Disopropylmethyl phosphonate	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL
Dibromochloroacetone										
	0/4	BCRL	1/4	0.14(0.04)	0/4	BCRL	0/3	BCRL	0/1	BCRL
Organochlorine Pesticides										
Aldrin	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL
Dichlorodiphenylethane	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL
Dichlorodiphenylchloroethane	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL
Dieldrin	0/4	BCRL	4/4	0.15-0.23(0.2)	0/4	BCRL	0/3	BCRL	0/1	BCRL
Endrin	0/4	BCRL	0/4	BCRL	0/4	BCRL	0/3	BCRL	0/1	BCRL
Arsenic	1/3	4.1(1.4)	0/3	BCRL	0/2	BCRL	1/3	5.7(1.9)	1/1	39
Mercury	1/3	0.3(0.1)	0/3	BCRL	0/2	BCRL	1/3	0.34(0.11)	0/1	BCRL
ICP Metals										
Cadmium	0/3	BCRL	0/3	BCRL	0/2	BCRL	0/3	BCRL	0/1	BCRL
Chromium	1/3	7.0(2.3)	0/3	BCRL	0/2	BCRL	0/3	BCRL	0/1	BCRL
Copper	0/3	BCRL	0/3	BCRL	0/2	BCRL	0/3	BCRL	0/1	BCRL
Lead	0/3	BCRL	1/3	20(8.5)	0/2	BCRL	0/3	BCRL	0/1	BCRL
Zinc	2/2	32.4(12.8)	1/3	42(14)	2/2	29.5(3.6)	0/3	BCRL	0/1	BCRL

NOTES:

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(mean) = Range is represented by the

adjusted geometric mean

upfl = micrograms per liter

(1A) = Well in Water Bearing Zone 1A

(1) = Well in Water Bearing Zone 1

(2) = Well in Water Bearing Zone 2

(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(H) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 01043/3			WELL 01048/3			WELL 02008/3			WELL 02030/3			WELL 02032/3		
	Frequency of Detections	Range (mean) in ug/l	Detections	Frequency of Detections	Range (mean) in ug/l	Detections	Frequency of Detections	Range (mean) in ug/l	Detections	Frequency of Detections	Range (mean) in ug/l	Detections	Frequency of Detections	Range (mean) in ug/l	Detections
Volatiles Halogenated Organics															
1,1-Dichloroethane	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
1,2-Dichloroethane	0/1	BCRL	0/1	BCRL	BCRL	1/4	BCRL	18(4.6)	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
1,1-Dichloroethylene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
1,1,2-Trichloroethane	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Carbon Tetrachloride	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Chlorobenzene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Chloroform	0/1	BCRL	1/1	8.1	BCRL	1/4	BCRL	2.5(0.62)	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
1,1,2-Dichloroethylene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Tetrachloroethylene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Trichloroethylene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Methylene Chloride	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Volatiles Hydrocarbon															
Bicycloheptadiene	NA		NA			NA			NA			NA			NA
Dicyclopentadiene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Volatiles Aromatic Organics															
Benzene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Ethylbenzene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
m-Xylene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
o- and p-Xylene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Toluene	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Organosulfur Compounds (Mustard related)															
1,4-Dithiane	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3
Dithiane	0/1	BCRL	0/1	BCRL	BCRL	0/4	BCRL	BCRL	0/4	BCRL	BCRL	0/3	BCRL	BCRL	0/3

NOTES:

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BCRL = Below Certified Reporting Limits

(mean) = Range is represented by the

adjusted geometric mean

ug/l = micrograms per liter

(1A) = Well in Water Bearing Zone 1A

(1) = Well in Water Bearing Zone 1

(2) = Well in Water Bearing Zone 2

(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(P4) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

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	WELL 0104513			WELL 0104814			WELL 0200813			WELL 0201813			WELL 0201213		
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS
Organosulfur Compounds (Herbicide related)															
Chlorophenylmethyl sulfide	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Chlorophenylmethyl sulfone	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Chlorophenylmethyl sulfonide	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Organophosphorus Compounds (GB related)															
Diisopropylmethyl phosphonate	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Dithiocarbamates															
Organochlorine Pesticides															
Aldrin	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Dichlorodiphenylethane	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Dichlorodiphenyltrichloroethane	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Dieldrin	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Endrin	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Aroclor	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Mercapt	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
ICP Metals															
Cadmium	1/1	27	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Chromium	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Copper	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Lead	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1
Zinc	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1	BCRL	0/1

NOTES:

NA - Not Analyzed

BCRL - Below Certified Reporting Limits

(mean) - Range is represented by the

adjusted geometric mean

ug/l - micrograms per liter

(1A) - Well in Water Bearing Zone 1A

(1) - Well in Water Bearing Zone 1

(2) - Well in Water Bearing Zone 2

(3) - Well in Water Bearing Zone 3

(4) - Well in Water Bearing Zone 4

(H) - Laboratory holding time exceeded

FREQUENCY OF DETECTIONS - Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

Page 21 of 22

	WELL 02025 (3)			WELL 02036 (3)			WELL 02038 (3)			WELL 02037 (3)			WELL 02041 (3)		
	Frequency of Detections	Range (mean) In ug/l		Frequency of Detections	Range (mean) In ug/l		Frequency of Detections	Range (mean) In ug/l		Frequency of Detections	Range (mean) In ug/l		Frequency of Detections	Range (mean) In ug/l	
Volatiles Halogenated Organics															
1,1-Dichloroethane	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
1,2-Dichloroethane	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
1,1-Dichloroethylene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
1,1,2-Trichloroethane	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Carbon Tetrachloride	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Chlorobenzene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Chloroform	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
1,1,2-Dichloroethylene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Tetrachloroethylene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Trichloroethylene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Methylene Chloride	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Volatiles Hydrocarbon															
Bicycloheptadiene	NA	BCRL		NA	BCRL		NA	BCRL		NA	BCRL		NA	BCRL	
Dicyclopentadiene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Volatiles Aromatic Organics															
Benzene	1/2	1,90.97		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Ethylbenzene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
m-Xylene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
o- and p-Xylene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Toluene	02	BCRL		04	BCRL		02	BCRL		01	BCRL		04	BCRL	
Organosulfur Compounds (Mustard related)															
1,4-Oxathiane	02	BCRL		04	BCRL		02	BCRL		01	BCRL		02	BCRL	
Dithiane	02	BCRL		04	BCRL		02	BCRL		01	BCRL		02	BCRL	

NOTES:

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adjusted geometric mean

ug/l = micrograms per liter

(1A) = Well in Water Bearing Zone 1A

(1) = Well in Water Bearing Zone 1

(2) = Well in Water Bearing Zone 2

(3) = Well in Water Bearing Zone 3

(4) = Well in Water Bearing Zone 4

(H) = Laboratory holding time exceeded

FREQUENCY OF DETECTIONS = Total detections

Table SSA 2.3-1 Summary of Groundwater Analytical Results for the Southern Study Area

Page 22 of 22

	WELL 02025 (3)			WELL 02026 (3)			WELL 02028 (3)			WELL 02027 (4)			WELL 2202A (3)		
	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS	RANGE (mean) (ppb)	FREQUENCY OF DETECTIONS
Organosulfate Compounds (Herbicide related)															
Chlorophenylmethyl sulfide	0/2	BCRL	0/4	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/3	BCRL	0/3	BCRL	0/3
Chlorophenylmethyl sulfone	1/2	3.2(1.6)	1/4	48(12)	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/3	BCRL	0/3	BCRL	0/3
Chlorophenylmethyl sulfoxide	0/2	BCRL	0/4	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/3	BCRL	0/3	BCRL	0/3
Organophosphorus Compounds (P3 related)															
Diisopropylmethyl phosphonate	0/2	BCRL	0/4	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/3	BCRL	0/3	BCRL	0/3
Chloromethanes															
Chloromethane	0/2	BCRL	0/4	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	1/4	0.58(0.49)	0/3	BCRL	0/3
Organochlorine Pesticides															
Albin	1/2	0.29(0.15)	0/4	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/3	BCRL	0/3	BCRL	0/3
Dichlorophenylmethane	0/2	BCRL	0/4	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/3	BCRL	0/3	BCRL	0/3
Dichlorophenylchloroethane	0/2	BCRL	0/4	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/3	BCRL	0/3	BCRL	0/3
Dieldrin	0/2	BCRL	0/4	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/3	BCRL	0/3	BCRL	0/3
Endrin	1/2	0.46(0.23)	0/4	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/3	BCRL	0/3	BCRL	0/3
Aroclor	0/1	BCRL	1/3	9.2(3.1)	1/2	7.2(3.4)	1/2	7.2(3.4)	1/1	0.2	0/2	BCRL	0/2	BCRL	0/2
Mercapt	0/1	BCRL	0/3	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/2	BCRL	0/2	BCRL	0/2
ICP Metals															
Cadmium	0/1	BCRL	0/3	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/2	BCRL	0/2	BCRL	0/2
Chromium	0/1	BCRL	0/3	BCRL	1/2	6.9(3.9)	1/2	6.9(3.9)	0/1	BCRL	0/2	BCRL	0/2	BCRL	0/2
Copper	0/1	BCRL	0/3	BCRL	0/2	BCRL	0/2	BCRL	0/1	BCRL	0/2	BCRL	0/2	BCRL	0/2
Lead	0/1	BCRL	0/3	BCRL	1/2	28(14)	1/2	28(14)	0/1	BCRL	0/2	BCRL	0/2	BCRL	0/2
Zinc	1/1	34	1/3	56(19)	1/2	81(41)	1/2	81(41)	1/1	32	0/2	32	0/2	BCRL	0/2

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(1) - Well in Water Bearing Zone 1

(2) - Well in Water Bearing Zone 2

(3) - Well in Water Bearing Zone 3

(4) - Well in Water Bearing Zone 4

(A) - Laboratory holding time exceeded

FREQUENCY OF DETECTIONS - Total detections

Table SSA 2.4-1. Structures Currently Standing in the Southern Study Area.
Page 1 of 2.

STRUCTURE NUMBER	SECTION	STRUCTURE FUNCTION	YEAR BUILT	CONTAMINATION CLASSIFICATION*
145	11	South Gate Guardhouse	1959	3
291	2	Guard Station - Foundation	1943	3
368	2	Swimming Pool and Filter House	1955	3
369	1	Lower Derby Valve Gate	1948	2
371	2	Process/Potable Water Pump Station	1942	2
372	2	Million Gallon Potable Water Reservoir	1942	3
372A	2	Chlorinator Station	1956	2
373	2	Officers' Station	Acquired in 1942	3
373B	2	Garage to Building 373	Acquired in 1942	3
374	2	Water Treatment Pit	1942	2
383	2	Community Club	1974	3
383A	2	Community Club Storage	**	3
841	12	Colorado Public Service Co. Meter House	1942	2
846	12	Recreation Building	1949	3
863	12	Target Range House	1952	2
NN0101	1	Upper Derby Valve Gate	**	2
NN1201	12	Long Metal Shed	**	3

* 1 = Suspected to be contaminated
 2 = Suspected to be contaminated but cleanable
 3 = Suspected to be uncontaminated

** = Date of construction not located

Table SSA 2.4-1. Structures Currently Standing in the Southern Study Area
Page 2 of 2.

STRUCTURE NUMBER	SECTION	STRUCTURE FUNCTION	YEAR BUILT	CONTAMINATION CLASSIFICATION*
NN1202	12	Square Metal Shed	**	3
NN1203	12	Wooden Shed	**	3
NN1204	12	Wooden Frame	**	3
NN1205	12	Wooden Shed	**	3
NN1206	12	Shooting Bunker	**	3
NN1207	12	Shooting Bunker	**	3
NN1208	12	Brick Structure	**	2
NN1209	12	Concrete Bunker	**	2
NN1210	12	Concrete Bunker	**	2
NN1211	12	Concrete Bunker	**	2
NN1212	12	Concrete Bunker	**	2
NN1213	12	Maintenance Shop	**	2

* 1 = Suspected to be contaminated
 2 = Suspected to be contaminated but cleanable
 3 = Suspected to be uncontaminated

** = Date of construction not located

TABLE SSA 2.5-1

Airborne Contaminant Distribution in the Southern Study Area. Page 1 of 1

Parameter	AQ5 South Boundary	AQ6 South of South Plants
Total Suspended Particulates (TSP)		
No. of Sampling Events	38	41
Annual Geometric Average ($\mu\text{g}/\text{m}^3$)	35	33
Range of Individual 24 Hr Samples ($\mu\text{g}/\text{m}^3$)	5.7-110	6.2-150
Particulate Matter 10 Microns (PM10)		
No. of Sampling Events	23	0
Annual Arithmetic Average ($\mu\text{g}/\text{m}^3$)	34	--
Range of Individual 24 Hr Samples ($\mu\text{g}/\text{m}^3$)	13-90	--
Asbestos		
No. of Sampling Events	0	31
Annual Geometric Average (f/cc)	--	0.01
Range of Individual 24 Hr Samples (f/cc)	--	0.01
Metals		
No. of Sampling Events	8	6
Range of Individual Samples Above CRL		
Cadmium	0.003-0.007	0.003-0.004
Chromium	0.003-0.008	0.003-0.12
Copper	0.076-0.17	0.068-0.096
Lead	0.016-0.052	0.01 - 0.03
Zinc	1.9	1.7
Arsenic	Not Observed	Not Observed
Mercury	Not Observed	Not Observed

CRL = Certified Reporting Limit

Table SSA 2.6-1. Contaminants of Concern to Biota in the Southern Study Area.
Page 1 of 1

<u>Group</u>	<u>Contaminant</u>
<u>Volatile Halogenated Organic Compounds (VHO)</u>	Chlorobenzene Chloroform
<u>Volatile Aromatic Organic Compounds (VAO)</u>	Ethylbenzene Toluene Xylene
<u>Volatile Hydrocarbons (VHC)</u>	Dicyclopentadiene
<u>Organochlorine Pesticides (OCP)</u>	Aldrin Chlordane DDE DDT Dieldrin Endrin Isodrin
<u>Organophosphorous Compounds (OPHGB) (Mustard-Agent Related)</u>	Diisopropylmethyl phosphonate
<u>Organosulfur Compounds (Herbicide-Related) (OSCH)</u>	Chlorophenylmethyl sulfide Chlorophenylmethyl sulfone Chlorophenylmethyl sulfoxide
<u>Organosulfur Compounds (OCSM) (Mustard-Agent Related)</u>	1,4-Oxathiane Dithiane
<u>Dibromochloropropane</u>	
<u>Arsenic</u>	
<u>Mercury</u>	
<u>ICP Metals (ICP)</u>	Cadmium Copper

Table SSA 2.6-2. Certified Reporting Limits for Biota Analysis Methods.

Page 1 of 1

Certified Reporting Limits			(ug/g)	
USATHAMA				
Method Code	Matrix Type	Analyte	Lower CRL	Upper CRL
B-6	Animals and Plants	Arsenic	0.25	5.0
C-6	Animals and Plants	Mercury	0.05	0.4
D-6	Plants	Aldrin	0.022	0.3
		Dieldrin	0.044	0.3
		Endrin	0.04	0.6
E-6A	Animals	Aldrin	0.02	0.3
		Dieldrin	0.031	0.3
		Endrin	0.4	0.6
F-6A	Animals	DDE	0.094	1.9
		DDT	0.29	3.8

Source: ESE, 1989

Table SSA 2.6-3 Contaminant Levels in Terrestrial Species Ranging Across the Southern Study Area. Page 1 of 2.

Species	Tissue	Location	Contaminant Level in parts per million (mg/kg wet weight basis) (Range/mean ^a)					DOE (n/nt)	DOY (n/nt)	
			Arsenic (n/nt)	Mercury (n/nt)	Aldrin (n/nt)	Dieldrin (n/nt)	Endrin (n/nt)			
VERTEBRATES										
Mallard	Juvenile	RMA	NRQ	LT 0.05-0.066 (2/3) 0.051	BCRL (3)	LT 0.031-0.52 (2/3) 0.2	BCRL (3)	LT 0.94-0.51 (1/3)	BCRL (3)	BCRL (3)
	Adult	RMA	NRQ	BCRL (8)	BCRL (8)	LT 0.031-4.5 (3/8)	BCRL (8)	BCRL-0.36 (4/8) 0.24	BCRL (8)	BCRL (8)
	Juvenile	Offpost	NRQ	BCRL (6)	BCRL (6)	BCRL (6)	BCRL (6)	BCRL (6)	BCRL (6)	BCRL (6)
	Adult	Offpost	NRQ	LT 0.05-0.061 (1/8)	BCRL (8)	BCRL (8)	BCRL (8)	LT 0.094-1.0 (2/8)	BCRL (8)	BCRL (8)
	Egg	RMA	NRQ	0.17-0.18 (2/2) 0.18	BCRL (2)	3.0-4.9 (2/2) 3.9	BCRL (2)	0.61-0.92 (2/2) 0.76	BCRL (2)	BCRL (2)
	Egg	Offpost	NRQ	0.05-0.19 (5/10) 0.068	BCRL (10)	BCRL (10)	BCRL (10)	LT 0.094-1.4 (6/10) 0.3	BCRL (2)	BCRL (2)
Ring-necked Pheasant	Juvenile	RMA	LT 0.25-1.8 (3/11)	BCRL (11)	BCRL (12)	LT 0.031-1.3 (5/12)	BCRL (12)	BCRL (11)	BCRL (11)	BCRL (11)
	Adult	RMA	BCRL (4)	BCRL (4)	BCRL (4)	LT 0.031-2.9 (3/4) 0.77	BCRL (4)	BCRL (3)	BCRL (3)	BCRL (3)
	Juvenile	Offpost	LT 0.25-1.4 (2/11)	BCRL (11)	BCRL (14)	LT 0.031-19 (1/14)	BCRL (14)	LT 0.094-1.3 (1/12)	BCRL (12)	BCRL (12)
	Adult	Offpost	BCRL (2)	BCRL (2)	BCRL (3)	BCRL (3)	BCRL (3)	BCRL (2)	BCRL (2)	BCRL (2)
	Egg	RMA	BCRL (10)	BCRL (11)	BCRL (11)	LT 0.031-5.4 (9/11) 1.1	LT 0.40-0.14 (1/11)	BCRL (10)	BCRL (10)	BCRL (10)

* Mean is calculated when 50 percent or more of samples have detectable contaminant levels. If less than 50 percent of samples have detectable contaminant levels, only the range of values are presented. When calculating the mean, values of 1/2 the detection limit are substituted for samples that are below detection limit.

** MKC Sample
BCRL Below Certified Reporting Limit
LT Less Than
NRQ Not Requested

n = Number of samples analyzed that contain detectable contaminant levels, nt = number of samples

SOURCE: ESE, 1989

Table SSA 2.6-3 Contaminant Levels in Terrestrial Species Ranging Across the Southern Study Area. Page 2 of 2.

Species	Tissue	Location	Contaminant Level in parts per million (mg/kg wet weight basis) (Range/mean*)					DOY (n/mt)
			Arsenic (n/mt)	Mercury (n/mt)	Aldrin (n/mt)	Endrin (n/mt)	DDT (n/mt)	
King-necked Pheasant (con't)	Muscle**	NMA	LT 0.25-4.1 (2/20)	BCRL (20)	BCRL (20) LT 0.018-0.063 (2/20)	BCRL (20)	BCRL (20)	BCRL (20)
		Offpost	BCRL (2)	BCRL (8)	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)
	Liver**	NMA	NRQ	NRQ	BCRL (6) LT 0.018-2.3 (4/6) 0.66	BCRL-0.091 (1/6)	BCRL-0.44 (1/6)	BCRL
		Offpost	NRQ	NRQ	BCRL (2)	BCRL (2)	BCRL (2)	BCRL
	Egg	Offpost	BCRL (10)	BCRL (11)	BCRL (11)	BCRL (11)	BCRL (10)	BCRL (10)
	Juvenile	NMA	NRQ	BCRL (10)	BCRL (10) LT 0.031-1.0 (6/10) 0.32	BCRL (10)	LT 0.094-0.22 (1/10)	BCRL (10)
American Kestrel		Offpost	NRQ	BCRL (8)	BCRL (8)	BCRL (8)	LT 0.094-0.73 (1/8)	BCRL (8)
	Egg	NMA	NRQ	LT 0.05-0.4 (8/34)	BCRL (33) LT 0.031-3.6 (17/33) GT 0.51	BCRL (33)	LT 0.094-1.2 (1/29)	BCRL (29)
	Egg	Offpost	NRQ	LT 0.05-0.057 (1/11)	BCRL (11)	BCRL (11)	LT 0.094-1.0 (2/11)	BCRL (11)
	Liver	NMA	BCRL (14)	BCRL (14)	BCRL (14) LT 0.031-0.19 (1/14)	BCRL (14)	NRQ	NRQ
	Liver	Offpost	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)	NRQ	NRQ
	Muscle	NMA	BCRL (14)	BCRL (14)	BCRL (14)	BCRL (14)	NRQ	NRQ
	Muscle	Offpost	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)	NRQ	NRQ

* Mean is calculated when 50 percent or more of samples have detectable contaminant levels. If less than 50 percent of samples have detectable contaminant levels, only the range of values are presented. When calculating the mean, values of 1/2 the detection limit are substituted for samples that are below detection limit.

** MKE Sample
BCRL Below Certified Reporting Limit
GT Greater Than
LT Less Than
NRQ Not Requested

n = Number of samples analyzed that contain detectable contaminant levels, nt = number of samples

SOURCE: ESE, 1989

Table SSA 2.6-4 Contaminant Levels in Fortuitous Terrestrial Species and USFWS Supplemental Samples in Southern Study Area. Page 1 of 2.

Species	Tissue	Location	Contaminant Level in parts per million (mg/kg wet weight basis) (Range/mean*)					DOF (n/nt)
			Arsenic (n/nt)	Mercury (n/nt)	Aldrin (n/nt)	Dieldrin (n/nt)	Endrin (n/nt)	DDT (n/nt)
Blue-winged Teal	Liver	Upper Derby Lake	BCRL (3)	0.37-1.6 (3/3)	BCRL (3)	0.18-0.28 (3/3) 0.24	BCRL (3)	BCRL (3)
	Muscle	Upper Derby Lake	BCRL (3)	0.26-0.56 (3/3) 0.39	BCRL (3)	0.09-0.16 (3/3) 0.13	BCRL (3)	BCRL (3)
Redhead	Liver	Upper Derby Lake	BCRL (5)	0.08-0.37 (5/5) 0.21	LT 0.03-0.088 (1/5)	0.31-0.75 (5/5) 0.46	LT 0.064-0.074(1/5)	BCRL (5)
	Muscle	Upper Derby Lake	BCRL (5)	LT 0.05-0.073 (2/2)	BCRL (5)	0.12-0.32 (5/5) 0.2	BCRL (5)	BCRL (5)
American Coot	Liver	Upper Derby Lake	BCRL (9)	0.3-1.8 (9/9) 1.1	BCRL (9)	LT 0.12-0.09 (8/9) 0.29	BCRL (9)	BCRL (9)
	Muscle	Upper Derby Lake	BCRL (9)	LT 0.05-0.34 (8/9) 0.18	BCRL (9)	LT 0.002-1.8 (8/9) 0.53	LT 0.94-0.31 (2/9)	BCRL (9)
Mourning Dove	Carcass	RMA	BCRL (2)	BCRL (2)	LT 0.63-1.8 1.2	5.6-50 (2/2) 31	LT 0.8-3.4 (1/2) 2.0	BCRL (2)
	Liver	RMA	BCRL (1)	BCRL (1)	BCRL (1)	7.37 (1)	3.7 (1)	BCRL (1)
Bald Eagle	Egg	Barr Lake	BCRL	0.099	BCRL (1)	0.808 (1)	BCRL (1)	BCRL (1)
Golden Eagle	Liver	RMA	NRQ	LT 0.05-0.22 (1/2) 0.12	BCRL (2)	LT 0.031-0.22 (1/2) 0.12	BCRL (2)	BCRL (2)
	Brain	RMA	BCRL (2)	LT 0.098-0.26 (2)	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)

* Mean is calculated when 50 percent or more of samples have detectable contaminant levels. If less than 50 percent of samples have detectable contaminant levels, only the range of values are presented. When calculating the mean, values of 1/2 the detection limit are substituted for samples that are below detection limit.

BCRL Below Certified Reporting Limit

LT Less Than

NRQ Not Requested

n = Number of samples analyzed that contain detectable contaminant levels, nt = number of samples

SOURCE: CSE, 1989

Table SSA 2.6-4 Contaminant Levels in Fortuitous Terrestrial Species and USFWS Supplemental Samples in Southern Study Area. Page 2 of 2.

Species	Tissue	Location	Contaminant Level in parts per million (mg/kg wet weight basis) (Range/mean*)					UDE (n/nt)	DOT (n/nt)
			Arsenic (n/nt)	Mercury (n/nt)	Aldrin (n/nt)	Dieldrin (n/nt)	Endrin (n/nt)		
Ferruginous Hawk	Liver	NMA	BCRL (5)	LT 0.05-0.29 (1/5)	BCRL (5)	0.26-4.8 (5/5) 2.7	BCRL (5)	BCRL (5)	BCRL (5)
	Brain	NMA	BCRL (5)	LT 0.05-0.15 (1/5)	BCRL (5)	LT 0.24-10 (4/5) 5.1	BCRL (5)	BCRL (5)	BCRL (5)
Red-tailed Hawk	Liver	NMA	BCRL (3)	LT 0.05-0.34 (1/3)	BCRL (3)	0.52-6.6 (3/3) 4.1	BCRL (3)	LT 0.31-0.76 (2/3) 0.48	BCRL (3)
	Brain	NMA	BCRL (3)	LT 0.05-0.093 (1/3)	BCRL (3)	LT 0.75-9.4 (2/3) 6.3	BCRL (3)	BCRL (3)	BCRL (3)
Great-horned Owl	Liver	NMA	BCRL (4)	LT 0.05-0.086 (2/4) 0.047	BCRL (4)	0.14-28 (4/4) 12	BCRL (4)	LT 0.094-16 (3/4) 5.9	BCRL (4)
	Brain	NMA	BCRL (4)	BCRL (4)	BCRL (4)	LT 0.18-16 (3/4) 8.8	BCRL (4)	LT 0.53-10 (3/4) 3.3	BCRL (4)
Northern Harrier	Egg	Upper Derby Lake	BCRL (2)	BCRL (2)	BCRL (2)	0.3-0.68 (2) 0.49	BCRL (2)	BCRL (2)	BCRL (2)
	Liver	NMA	BCRL (1)	BCRL (1)	BCRL (1)	7.6 (1)	BCRL (1)	BCRL (1)	BCRL (1)
Badger	Liver	NMA	BCRL (1)	BCRL (1)	BCRL (1)	1.6 (1)	BCRL (1)	NRQ	NRQ
	Kidneys	NMA	NRQ	NRQ	BCRL (1)	0.8 (1)	BCRL (1)	NRQ	NRQ

* Mean is calculated when 50 percent or more of samples have detectable contaminant levels. If less than 50 percent of samples have detectable contaminant levels, only the range of values are presented. When calculating the mean, values of 1/2 the detection limit are substituted for samples that are below detection limit.
BCRL Below Certified Reporting Limit
LT Less Than
NRQ Not Requested
n = Number of samples analyzed that contain detectable contaminant levels, nt = number of samples

SOURCE: ESE, 1989

Table SSA 2.0-5 Contaminant Levels in Aquatic Species in the Southern Study Area. Page 1 of 2.

Species	Tissue	Location	Contaminant Level in parts per million (mg/kg wet weight basis) (Range/mean*)						DOF (n/nt)
			Arsenic (n/nt)	Mercury (n/nt)	Aldrin (n/nt)	Dieldrin (n/nt)	Endrin (n/nt)	DDT (n/nt)	
AQUATIC PLANTS AND PLANKTON									
Plankton	Composite	RMA Lake Mary, 1986	LT 0.25-0.43 (1/3)	BCRL (3)	BCRL (3)	BCRL (3)	BCRL (3)	NRQ	
	Composite	RMA Lake Ladora, 1986	BCRL (3)	BCRL (3)	BCRL (3)	BCRL (3)	BCRL (3)	NRQ	
	Composite	RMA Lower Derby, 1986	BCRL (3)	BCRL (3)	BCRL (3)	BCRL (3)	BCRL (3)	NRQ	
Aquatic Macrophytes	Whole	RMA Lake Mary, 1986	0.46-0.78 (2/2)	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)	NRQ	
	Whole	RMA Lake Ladora, 1986	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)	NRQ	
FISH									
Largemouth Bass	Fillet	Offpost Control, 1988	BCRL (5)	0.11-0.24 0.15 (5/5) 0.058-0.12 0.084 (5/5) 0.084 (1)	BCRL (5)	BCRL (5)	BCRL (5)	BCRL (5)	
	Remainder	Offpost Control, 1988	BCRL (5)		BCRL (5)	BCRL (5)	BCRL (5)	BCRL (5)	
	Composite	Offpost Control, 1988	BCRL (1)		BCRL (1)	BCRL (1)	BCRL (1)	BCRL (1)	
Largemouth Bass	Fillet	RMA Lower Derby, 1988	BCRL (5)	0.18-0.55 0.37 (5/5) 0.19-0.32 0.25 (5/5) 0.098 (1)	LT 0.02-0.044 (1/5) LT 0.02-0.053 0.031 (4/5) BCRL (1)	LT 0.031-0.37 0.21 (4/5) 0.1-0.86 0.49 (5/5) BCRL (1)	BCRL (5) LT 0.094-0.68 0.32 (4/5) 0.1-0.84 0.59 BCRL (1)	BCRL (5)	
	Remainder	RMA Lower Derby, 1988	BCRL (5)			BCRL (5)	BCRL (5)	BCRL (5)	
	Composite	RMA Lower Derby, 1988	BCRL (1)			BCRL (1)	BCRL (1)	BCRL (1)	
Largemouth Bass	Whole	RMA Lake Mary, 1986	BCRL (3)	LT 0.05-0.1 0.066 (2/3) LT 0.05-0.1 (1/2) 0.084-0.24 0.18 (3/3)	BCRL (3)	LT 0.031-0.12 (1/3) BCRL (2)	BCRL (3)	BCRL (3)	
	Fillet	RMA Lake Mary, 1986	BCRL (2)		BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)	
	Whole	RMA Lake Ladora, 1986	BCRL (3)		BCRL (3)	LT 0.031-0.034 0.027- (2/3)	BCRL (3)	BCRL (3)	
Largemouth Bass	Whole	RMA Lower Derby, 1986	BCRL (3)	LT 0.05-0.063 (1/3)	BCRL (3)	LT 0.031-0.11 0.072 (2/3)	BCRL (3)	BCRL (3)	

* Mean is calculated when 50 percent or more of samples have detectable contaminant levels. If less than 50 percent of samples have detectable contaminant levels, only the range of values are presented. When calculating the mean, values of 1/2 the detection limit are substituted for samples that are below detection limit.

BCRL Below Certified Reporting Limit

LT Less Than

NRQ Not Requested

n = Number of samples analyzed that contain detectable contaminant levels, nt = number of samples

Source: ESE, 1989

Table SSA 2.6-5 Contaminant Levels in Aquatic Species in the Southern Study Area. Page 2 of 2.

Species	Tissue	Location	Contaminant Level in parts per million (mg/kg wet weight basis) (Range/mean) ^a					DDT (n/nt)
			Arocloric (n/nt)	Mercury (n/nt)	Aldrin (n/nt)	Dieldrin (n/nt)	Endrin (n/nt)	
Bluegill	Fillet	NWA Lake Mary, 1988	BCRL (5)	0.081-0.26 0.19 (5/5)	BCRL (5)	BCRL (5)	BCRL (5)	BCRL (5)
	Remainder	NWA Lake Mary, 1988	BCRL (5)	LT 0.05-0.17 0.1 (4/5)	BCRL (5)	BCRL (5)	BCRL (5)	BCRL (5)
	Fillet	NWA Lake Mary, 1986	BCRL (5)	LT 0.05-0.099 0.074 (2/3)	BCRL (3)	LT 0.031-0.041 (1/3)	BCRL (3)	BCRL (3)
	Whole	NWA Lake Mary, 1986	BCRL (6)	LT 0.05-0.14 0.061 (1/6)	BCRL (6)	LT 0.031-0.16 0.085 (5/6)	BCRL (6)	BCRL (6)
Bluegill	Whole	NWA Lower Derby, 1988	BCRL (6)	LT 0.05-0.091 0.054 (3/6)	BCRL (6)	LT 0.031-0.13 0.064 (4/6)	BCRL (6)	BCRL (6)
	Whole	NWA Lower Derby, 1986	BCRL (3)	BCRL (3)	BCRL (3)	0.14-0.16 0.15 (3/3)	BCRL (3)	BCRL (3)
Bluegill	Whole	NWA Lake Ladora, 1986	BCRL (3)	0.059-0.12 0.084 (3/3)	BCRL (3)	0.065-0.15 0.1 (3/3)	BCRL (3)	BCRL (3)
Bluegill	Composite	Offpost Control, 1988	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)	BCRL (2)
Northern Pike	Fillet	NWA Lower Derby, 1986	BCRL (3)	0.28-0.47 0.4 (3/3)	BCRL (3)	BCRL (3)	BCRL (3)	BCRL (3)
	Fillet	NWA Lake Ladora, 1986	BCRL (2)	0.29-0.37 (2/2)	BCRL (2)	LT 0.031-0.044 (1/2)	BCRL (2)	BCRL (2)
Black Bullhead	Whole	NWA Lower Derby, 1986	BCRL (3)	LT 0.05-0.072 (1/3)	BCRL (3)	0.085-0.21 0.14 (3/3)	BCRL (3)	LT 0.094-0.098 (1/3)

* Mean is calculated when 50 percent or more of samples have detectable contaminant levels. If less than 50 percent of samples have detectable contaminant levels, only the range of values are presented. When calculating the mean, values of 1/2 the detection limit are substituted for samples that are below detection limit.

BCRL Below Certified Reporting Limit

LT Less Than

NRQ Not Requested

n = Number of samples analyzed that contain detectable contaminant levels, nt = number of samples

Source: ESF, 1989

Table SSA 3.1-1 Analytes Detected in SSA Media During the Remedial Investigation. Page 1 of 4.

Analyte Groups	Soil/ ¹	Groundwater/ ¹	Surface Water/ ¹	Air/ ²	Biota/ ³
<u>Volatile Halogenated Organic Compounds</u>					
1,1-Dichloroethane		X			
1,2-Dichloroethane					
1,1-Dichloroethylene		X			
1,2-Dichloroethylene					
1,1,2,2-Tetrachloroethane	X				
1,1,1-Trichloroethane	X		X		
1,1,2-Trichloroethane		X			
Carbon tetrachloride		X	X		
Chlorobenzene		X	X		
Chloroform	X	X	X		
Methylene chloride	X	X	X		
Tetrachloroethylene	X	X	X		
Trichloroethylene		X			
Trichloropropene					
<u>Volatile Hydrocarbons</u>					
2-Butoxyethanol					
4-Hydroxy-4-methyl-2-pentanone					
2,2'-Oxybisethanol					
Bicycloheptadiene		X			
Dicyclopentadiene	X	X	X		
Methylcyclohexane					
Methylisobutyl ketone	X		X		

^{1/} A total list of all analyzed compounds in these media can be found in Appendix SSA-A.^{2/} A total list of all analyzed airborne contaminants can be found in section 2.5 of the text.^{3/} A total list of all analyzed compounds in biota can be found in section 2.6 of the text.

Table SSA 3.1-1 Analytes Detected in SSA Media During the Remedial Investigation. Page 2 of 4.

Analyte Groups	Soil/ ¹	Groundwater/ ¹	Surface Water/ ¹	Air/ ²	Biota/ ³
<u>Volatile Aromatic Organics</u>					
Benzene		X	X		
Ethylbenzene		X			
m-Xylene		X			
o- and p- Xylene		X			
Toluene	X	X	X		
<u>Organosulfur Compounds, Mustard-Agent Related</u>					
1,4-Oxathiane		X			
Chloroacetic acid					
Dithiane		X			
Thiodiglycol					
<u>Organosulfur Compounds, Herbicide-Related</u>					
Chlorophenylmethyl sulfide		X			
Chlorophenylmethyl sulfone		X			
Chlorophenylmethyl sulfoxide		X			
Dimethyl disulfide					
Benzothiazole			X		

^{1/} A total list of all analyzed compounds in these media can be found in Appendix SSA-A.

^{2/} A total list of all analyzed airborne contaminants can be found in section 2.5 of the text.

^{3/} A total list of all analyzed compounds in biota can be found in section 2.6 of the text.

Table SSA 3.1-1 Analytes Detected in SSA Media During the Remedial Investigation. Page 3 of 4.

Analyte Groups	Soil/ ¹	Groundwater/ ¹	Surface Water/ ¹	Air/ ²	Biota/ ³
<u>Organophosphorous Compounds, GB-Agent Related</u>					
Diisopropylmethyl phosphonate		X			
Dimethylmethyl phosphonate			X		
Isopropylmethyl phosphonic acid					
Methylphosphonic acid					
Phosphoric acid, tributyl ester					
Phosphoric acid, triphenyl ester					
<u>DBCP</u>	X	X	X		
<u>Fluoroacetic Acid</u>					
<u>Polynuclear Aromatic Hydrocarbons</u>					
Fluoranthene					
Methylnaphthalene					
Phenanthrene					
Pyrene					
<u>Semivolatile Halogenated Organic Compounds</u>					
Hexachlorobutadiene					
Hexachlorocyclopentadiene	X				
Tetrachlorobenzene					
Trichlorobenzene					

^{1/} A total list of all analyzed compounds in these media can be found in Appendix SSA-A.

^{2/} A total list of all analyzed airborne contaminants can be found in section 2.5 of the text.

^{3/} A total list of all analyzed compounds in biota can be found in section 2.6 of the text.

Table SSA 3.1-1 Analytes Detected in SSA Media During the Remedial Investigation. Page 4 of 4.

Analyte Groups	Soil/ ¹	Groundwater/ ¹	Surface Water/ ¹	Air/ ²	Biota/ ³
<u>Organochlorine Pesticides</u>					
Aldrin	X	X	X		X
Chlordane	X				
DDE	X	X			X
DDT	X	X			X
Dieldrin	X	X	X		X
Endrin	X	X	X		X
Isodrin	X		X		
<u>Arsenic</u>	X	X	X		X
<u>Mercury</u>	X	X			X
<u>ICP Metals</u>					
Cadmium	X	X		X	
Chromium	X	X	X	X	
Copper	X	X	X	X	
Lead	X	X	X	X	
Zinc	X	X	X	X	

^{1/} A total list of all analyzed compounds in these media can be found in Appendix SSA-A.

^{2/} A total list of all analyzed airborne contaminants can be found in section 2.5 of the text.

^{3/} A total list of all analyzed compounds in biota can be found in section 2.6 of the text.

Table SSA 3.1-2 Chemical and Physical Properties of Southern Study Area Organic Analytes. Page 1 of 3

Compound	Reference	Physical State (20°C, 1 atm)	Aqueous ^a		Vapor ^b Pressure (mm Hg) (20-25°C)	Henry's Law ^c Constant (atm m ³ /mol)	Partition ^d Coefficient Log (K _{ow})	Partition ^e Coefficient Log (K _{oc})	Bioconcentration ^f Factor
			Density (g/ml)	Solubility (mg/l) (20-25°C)					
<u>Volatile Halogenated Organic Compounds</u>									
1,1-Dichloroethane	*	liquid	1.18	5,500	180	4.31 x 10 ⁻³	1.79	1.90	9.0
1,2-Dichloroethane	*	liquid	1.25	8,600	64	9.8 x 10 ⁻⁴	1.45-1.79	1.20	7.2
1,1-Dichloroethylene	*	liquid	1.22	2,200	600	3.4 x 10 ⁻²	1.84	2.02	26
1,2-Dichloroethylene	*	liquid	1.26	6,300	265	7.6 x 10 ⁻³	1.48-1.53	1.74	5.5
1,1,2,2-Tetrachloroethane	USEPA, 1982	liquid	1.59	2,900	5	3.8 x 10 ⁻⁴	2.39	2.07	
1,1,1-Trichloroethane	*	liquid	1.34	2,500	123	0.0144	2.47-2.50	2.34	43
Carbon tetrachloride	*	liquid	1.6	810	90	2.4 x 10 ⁻²	2.64-2.83	2.28	45
Chlorobenzene	*	liquid	1.11	450	11.7	3.72 x 10 ⁻³	2.84-2.98	2.55	48
Chloroform	*	liquid	1.48	8,300	151	2.87 x 10 ⁻³	1.90-1.97	1.65	11
Methylene chloride	*	liquid	1.33	18,000	362	2.03 x 10 ⁻³	1.25-1.30	1.20	8.5
Tetrachloroethylene	*	liquid	1.63	252	18	2.6 x 10 ⁻²	2.53-2.60	2.56	41
Trichloroethylene	*	liquid	1.46	950	58	9.1 x 10 ⁻³	2.29-3.30	2.64	38
<u>Volatile Hydrocarbons</u>									
Bicycloheptadiene	*	liquid	0.91	228	50	2.6 x 10 ⁻²	1.98	2.28	19
Dicyclopentadiene	*	solid	0.98	19.4	1.7	1.9 x 10 ⁻²	3.14	2.99	88

^a The geometric mean of multiple values was tabulated.

^b Where available, values reported by USEPA, 1982 were tabulated. If a USEPA value was not available, the geometric mean of reported values was presented.

^c Where available, values reported by the USEPA were tabulated. If a USEPA value was not available, the geometric mean of reported values was presented.

^d Octanol/water partition coefficient from references in Appendix D. If more than one value was reported, the range of reported values was tabulated.

^e Organic carbon partition coefficient from references in Appendix D.

^f The geometric mean of reported values was tabulated.

^g Shell's preferred value (Hal Stuber, personal communication)

NA = Not available

* References in Appendix D

Table SSA 3.1-2 Chemical and Physical Properties of Southern Study Area Organic Analytes. Page 2 of 3

Compound	Reference	Physical State (20°C, 1 atm)	Density (g/ml)	Aqueous ^a		Vapor ^b Pressure (mm Hg) (20-25°C)	Henry's Law ^c Constant (atm m ³ /mol)	Partition ^d Coefficient Log (K _{ow})	Partition ^e Coefficient Log (K _{oc})	Bioconcentration ^f Factor
				Solubility (mg/l) (20-25°C)						
<u>Volatile Hydrocarbons (con't)</u>										
Methylisobutyl ketone	*	liquid	0.798	19,000		16	1.1 x 10 ⁻⁴	1.25	0.60	5.9
<u>Volatile Aromatic Organic Compounds</u>										
Benzene	*	liquid	0.88	1,700		95	5.6 x 10 ⁻³	2.0-2.1	1.62	18
Ethylbenzene	*	liquid	0.87	150		7	6.4 x 10 ⁻³	3.1-3.2	2.75	78
m-Xylene	*	liquid	0.86	130		10	5.6 x 10 ⁻⁴	3.2	3.02	68
o- and p-Xylene	*	liquid	0.86	180		10	5.6 x 10 ⁻⁴	2.8-3.1	3.02	68
Toluene	*	liquid	0.87	520		28	6.4 x 10 ⁻³	2.6-2.7	2.63	45
<u>Organosulfur Compound, Mustard-Agent Related</u>										
1,4-Oxathiane	*	liquid	1.1	20,000		4.4	NA	-0.16	0.69	NA
Dithiane	*	solid	NA	3,000		0.80	NA	0.77	NA	NA
<u>Organosulfur Compounds, Herbicide Related</u>										
Chlorophenylmethyl sulfide	*	liquid	1.2	16		0.05	6.4 x 10 ⁻⁴	3.2	3.05	130
Chlorophenylmethyl sulfone	*	solid	NA	910		3 x 10 ⁻³	8.0 x 10 ⁻⁶	1.3	1.80	6.0
Chlorophenylmethyl sulfoxide	*	solid	NA	1,100		7.8 x 10 ⁻²	1.5 x 10 ⁻⁵	1.2	1.71	6.5

^a The geometric mean of multiple values was tabulated.^b Where available, values reported by USEPA, 1982 were tabulated. If a USEPA value was not available, the geometric mean of reported values was presented.^c Where available, values reported by the USEPA were tabulated. If a USEPA value was not available, the geometric mean of reported values was presented.^d Octanol/water partition coefficient from references in Appendix D. If more than one value was reported, the range of reported values was tabulated.^e Organic carbon partition coefficient from references in Appendix D.^f The geometric mean of reported values was tabulated.^g Shell's preferred value (Hal Stuber, personal communication)

NA = Not available

* References in Appendix D

Table SSA 3.1-2 Chemical and Physical Properties of Southern Study Area Organic Analytes. Page 3 of 3

Compound	Reference	Physical State (20°C, 1 atm)	Density (g/ml)	Aqueous ^a Solubility (mg/l) (20-25°C)	Vapor ^b Pressure (mm Hg) (20-25°C)	Henry's Law ^c Constant (atm m ³ /mol)	Partition ^d Coefficient Log (K _{ow})	Partition ^e Coefficient Log (K _{oc})	Bioconcentration ^f Factor
<u>Organophosphorous Compounds, GB-Agent Related</u>									
Diisopropylethyl phosphonate	*	liquid	0.98	720	0.28	1.9×10^{-4}	1.73-1.82	2.09	2.6
Dibromochloropropane	*	liquid	2.09	11,000	1.0	3.11×10^{-4}	2.29-2.43	2.41	34
<u>Semivolatiles Halogenated Organic Compounds</u>									
Hexachlorocyclopentadiene	*	liquid	1.7	1.59	0.08	1.4×10^{-2}	5.04	4.06	225
<u>Organochlorine Pesticides</u>									
Aldrin	*	solid	1.6g	0.021	6.6×10^{-6}	1.6×10^{-5}	5.3-7.4	4.67	5,100
Chlordane	*	solid	1.6	0.13	1.0×10^{-5}	9.6×10^{-5}	2.78-5.48	5.15	
Dichlorodiphenylethane	*	liquid	1.6g	0.08	6.5×10^{-6}	6.8×10^{-5}	4.86-7.1	4.93	8,100
Dichlorodiphenyltrichloroethane	*	solid	1.56g	0.002	5.5×10^{-6}	5.1×10^{-4}	3.98-7.48	5.48	19,000
Dieldrin	* Weast, 1975	solid	1.75	0.084	1.78×10^{-7}	4.6×10^{-7}	3.5-6.2	3.86	2,400
Endrin	*	solid	1.7	0.082	2.0×10^{-7}	1.4×10^{-6}	3.5-5.6	3.87	2,000
Isodrin	*	liquid	1.6g	0.17	1.0×10^{-4}	3.3×10^{-4}	4.4-6.5	4.58	2,600

^a The geometric mean of multiple values was tabulated.

^b Where available, values reported by USEPA, 1982 were tabulated. If a USEPA value was not available, the geometric mean of reported values was presented.

^c Where available, values reported by the USEPA were tabulated. If a USEPA value was not available, the geometric mean of reported values was presented.

^d Octanol/water partition coefficient from references in Appendix D. If more than one value was reported, the range of reported values was tabulated.

^e Organic carbon partition coefficient from references in Appendix D.

^f The geometric mean of reported values was tabulated.

^g Shell's preferred value (Hal Stuber, personal communication)

NA = Not available

* References in Appendix D

Table SSA 3.1-3 Relative Rank of Selected SSA Organic Analyte Physical Characteristics. Page 1 of 2

Compound	Koc ^a	Henry's Law Constant ^b	Solubility ^c
<u>Volatile Halogenated Organic Compounds</u>			
1,1-Dichloroethane	Low	High	Moderate
1,1-Dichloroethylene	Low	High	Moderate
1,1,1-Trichloroethane	Low	High	Moderate
1,1,2,2-Trichloroethane	Low	Moderate	Moderate
1,2-Dichloroethane	Low	High	Moderate
1,2-Dichloroethylene	Low	High	Moderate
Carbon tetrachloride	Low	High	Moderate
Chloroform	Low	High	High
Methylene chloride	Moderate	High	Moderate
Chlorobenzene	Moderate	High	Moderate
Tetrachloroethylene	Moderate	High	Moderate
Trichloroethylene	Moderate	High	Moderate
<u>Volatile Hydrocarbons</u>			
Bicycloheptadiene	Low	High	Moderate
Methylisobutyl ketone	Low	Moderate	High
Dicyclopentadiene	Moderate	High	Low
<u>Volatile Aromatic Organic Compounds</u>			
Benzene	Low	High	Moderate
Ethylbenzene	Moderate	High	Moderate
m-Xylene	Moderate	Moderate	Moderate
o- and p-Xylene	Moderate	High	Moderate
Toluene	Moderate	High	Moderate

^a Low = <250 µl/g
^b Low = <10⁻⁷ atm m³/mol
^c Low = <50 µg/l

Moderate = 250 to 4000 µl/g
 Moderate = 10⁻⁷ to 10⁻³ atm m³/mol
 Moderate = 50 to 10,000 µg/l

High = >4000 µl/g
 High = >10⁻³ atm m³/mol
 High = >10,000 µg/l

Table SSA 3.1-3 Relative Rank of Selected SSA Organic Analyte Physical Characteristics. Page 2 of 2

Compound	Koc ^a	Henry's Law Constant ^b	Solubility ^c
<u>Organosulfur Compounds, Mustard-Agent Related</u>			
1,4-Oxathiane	Low	Low	High
Dithiane	Low	Low	Moderate
<u>Organosulfur Compounds, Herbicide Related</u>			
Chlorophenylmethyl sulfone	Low	Moderate	Moderate
Chlorophenylmethyl sulfoxide	Low	Moderate	Moderate
Chlorophenylmethyl sulfide	Moderate	Moderate	Low
<u>Organophosphorous Compounds, GB-Agent Related</u>			
Diisopropylmethyl phosphonate	Low	Moderate	Moderate
<u>Dibromochloropropane</u>	High	Moderate	Moderate
<u>Semivolatile Halogenated Organic Compounds</u>			
Hexachlorocyclopentadiene	High	High	Low
<u>Organochlorine Pesticides</u>			
Aldrin	High	Moderate	Low
Chlordane	High	Moderate	Low
Dichlorodiphenylethane	High	Moderate	Low
Dichlorodiphenyltrichloroethane	High	Moderate	Low
Dieldrin	High	Moderate	Low
Endrin	High	Moderate	Low
Isodrin	High	Moderate	Low
^a Low = <250 µl/g	Moderate = 250 to 4000 µl/g	High = >4000 µl/g	
^b Low = <10 ⁻⁷ atm m ³ /mol	Moderate = 10 ⁻⁷ to 10 ⁻³ atm m ³ /mol	High = >10 ⁻³ atm m ³ /mol	
^c Low = <50 µg/l	Moderate = 50 to 10,000 µg/l	High = >10,000 µg/l	

Table SSA 3.2-1 Potentially Contaminated Sites and Nonsource Areas Investigated During the Remedial Investigation and Redesignated for Discussion in the Study Area Report. Page 1 of 1.

RMACCPMT Site Designation	Study Area Report Revised Designation	Site Name	Site Description
6-2	<u>SSA-1. Lakes</u>		
1-2a	SSA - 1a	Eastern Upper Derby Lake	Received overflow process water from Upper Derby Lake
1-2b	SSA - 1b	Upper Derby Lake	Formerly part of process water return system.
12-2	SSA - 1c	Lower Derby Lake	Formerly part of process water return system.
2-17a	SSA - 1d	Rod and Gun Club Pond	Depression receiving overflow from Lower Derby Lake.
2-17b	SSA - 1e	Lake Ladora	Formerly part of process water return system.
	SSA - 1f	Lake Mary	Recreational Lake.
1-1	<u>SSA-2. Ditches</u>		
2-1	SSA - 2a	Process water ditch system	Conduit for wastewaters from the South Plants.
3-2,3-3	SSA - 2b	Sand Creek Lateral	Receives drainage from South Plants off-post sources.
	SSA - 2c	Overflow basin and ditch	Received overflow from lakes Mary and Ladora.
11-1	<u>SSA-3. Buried Lake Sediments</u>		
12-1	SSA - 3a	Lake Ladora sediments	Buried sediments dredged from Lake Ladora in 1964-65
	SSA - 3b	Derby Lakes sediments	Buried sediments dredged from U. & L. Derby Lakes in 1964
1-12	<u>SSA-4. Trash Dump</u>		
	SSA - 4	Trash dump	Surface disposal of miscellaneous debris.
1-UNC	<u>SSA-5. Balance of Areas Investigated</u>		
11-UNC	SSA - 5a	Isolated detections	Isolated detections of DBCP
12-UNC	SSA - 5b	Havana/Peoria Streets Ponds	Ponds and ditches receiving runoff from off -post
12-UNC	SSA - 5c	Isolated detections	Isolated detection of lead above indicator range.
12-UNC	SSA - 5d	Isolated detections	Isolated detection of lead above indicator range.
	SSA - 5e	Uvalda Ditch	Carries runoff from off-post areas south of RMA.

Table SSA 3.2-2 Site Categories by Contaminant Group

Page 1 of 1

	VHQ	VHC	VAQ	DBCP	SHO	OCF	As	Hg	ICP
<u>SSA-1. Lakes and Ponds</u>									
SSA-1a	3					3	3		
SSA-1b	3				3	3	3	3	3
SSA-1c				3		3	3	3	3
SSA-1d	3					3			
SSA-1e	3	3		3		3	3	3	3
SSA-1f						3	3		
<u>SSA-2. Ditches and Overflow Basin</u>									
SSA-2a			2			2		2	2
SSA-2b					1	2		1	2
SSA-2c	3					2	1	1	
<u>SSA-3. Buried Lake Sediments</u>									
SSA-3a								2	2
SSA-3b				1	2	2		2	
<u>SSA-4. Trash Dump</u>									
	2	2			1	2			
<u>SSA-5. Balance of Areas Investigated</u>									
SSA-5a									
SSA-5b						2			
SSA-5c	2								2
SSA-5d									2
SSA-5e				1					1

NOTE: When contaminants are detected in lake sediments, the lake is considered a Category 3 site.

Table SSA 3.4-1. Areas and Volumes of Potentially Contaminated Soil and Sediment for Volatile Halogenated Organics. Page 1 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.)			by Concentration $\mu\text{g/g}$			Volume (yd^3) by Concentration $\mu\text{g/g}$		
	CRL-1	1-10	10-100	>100	Thickness (ft)	CRL-1	1-10	10-100	>100
9-2 FT DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	0	0	0	0		0	0	0	0
SSA-1b Upper Derby	560,000	0	0	0	2	41,000	0	0	0
SSA-1c Lower Derby	0	0	0	0		0	0	0	0
SSA-1d Rod and Gun Club	0	0	0	0		0	0	0	0
SSA-1e Lake Ladora	7,800	0	0	0	2	580	0	0	0
SSA-1f Lake Mary	0	0	0	0		0	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	0	0	0	0		0	0	0	0
SSA-2b Sand Creek Lateral	0	0	0	0		0	0	0	0
SSA-2c Overflow Basin and Ditch	90,000	90,000	0	0	2	6,700	6,700	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladora Sediments	0	0	0	0		0	0	0	0
SSA-3b Derby Lakes Sediments	0	0	0	0		0	0	0	0
SSA-4 Trash Dump	0	0	0	0		0	0	0	0
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	0	0	0	0		0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0	0		0	0	0	0
SSA-5c Isolated Detections	0	0	0	0		0	0	0	0
SSA-5d Isolated Detections	0	0	0	0		0	0	0	0
SSA-5e Uvalde Ditch	0	0	0	0		0	0	0	0
DEPTH INTERVAL TOTALS	660,000	90,000	0	0		48,000	6,700	0	0

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Microgram/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-1. Areas and Volumes of Potentially Contaminated Soil and Sediment for Volatile Halogenated Organics. Page 2 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.)			by Concentration $\mu\text{g/g}$			Volume (yd^3) by Concentration $\mu\text{g/g}$		
	CRL-1	1-10	10-100	>100	Thickness (ft)	CRL-1	1-10	10-100	>100
2-5 FT DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	0	0	0	0		0	0	0	0
SSA-1b Upper Derby	0	0	0	0		0	0	0	0
SSA-1c Lower Derby	0	0	0	0		0	0	0	0
SSA-1d Rod and Gun Club	440,000	0	0	0	3	49,000	0	0	0
SSA-1e Lake Ladora	7,900	0	0	0	3	880	0	0	0
SSA-1f Lake Mary	0	0	0	0		0	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	0	0	0	0		0	0	0	0
SSA-2b Sand Creek Lateral	0	0	0	0		0	0	0	0
SSA-2c Overflow Basin and Ditch	75,000	0	0	0	3	8,300	0	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladora Sediments	0	0	0	0		0	0	0	0
SSA-3b Derby Lakes Sediments	0	0	0	0		0	0	0	0
SSA-4 Trash Dump									
SSA-4	0	0	0	0		0	0	0	0
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	0	0	0	0		0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0	0		0	0	0	0
SSA-5c Isolated Detections	0	0	0	0		0	0	0	0
SSA-5d Isolated Detections	0	0	0	0		0	0	0	0
SSA-5e Uvalde Ditch	0	0	0	0		0	0	0	0
DEPTH INTERVAL TOTALS	520,000	0	0	0		58,000	0	0	0

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-1. Areas and Volumes of Potentially Contaminated Soil and Sediment for Volatile Halogenated Organics. Page 3 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.)			by Concentration $\mu\text{g/g}$			Volume (yd^3) by Concentration $\mu\text{g/g}$		
	CRL-1	1-10	10-100	>100	Thickness (ft)	CRL-1	1-10	10-100	>100
5-20 FT. DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	0	0	0	0		0	0	0	0
SSA-1b Upper Derby	0	0	0	0		0	0	0	0
SSA-1c Lower Derby	0	0	0	0		0	0	0	0
SSA-1d Rod and Gun Club	0	0	0	0		0	0	0	0
SSA-1e Lake Ladora	0	0	0	0		0	0	0	0
SSA-1f Lake Mary	0	0	0	0		0	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	0	0	0	0		0	0	0	0
SSA-2b Sand Creek Lateral	0	0	0	0		0	0	0	0
SSA-2c Overflow Basin and Ditch	87,000	0	0	0	10	32,000	0	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladora Sediments	0	0	0	0		0	0	0	0
SSA-3b Derby Lakes Sediments	0	0	0	0		0	0	0	0
SSA-4 Trash Dump	16,000	0	0	0	5	3,000	0	0	0
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	0	0	0	0		0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	310	0	0	0	5	57	0	0	0
SSA-5c Isolated Detections	0	0	0	0		0	0	0	0
SSA-5d Isolated Detections	0	0	0	0		0	0	0	0
SSA-5e Uvalda Ditch	0	0	0	0		0	0	0	0
DEPTH INTERVAL TOTALS	100,000	0	0	0		35,000	0	0	0

TOTAL VOLUME OF POTENTIALLY CONTAMINATED SOIL FOR VOLATILE HALOGENATED ORGANICS = 150,000 yd^3 .

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

SSA 3.4-1/SSA-1
 Rev. 4/24/89

Table SSA 3.4-2. Areas and Volumes of Potentially Contaminated Soil and Sediment for Methylene Chloride. Page 1 of 2.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	1-10	10-100		CRL-1	1-10	10-100	>100
0-2 FT DEPTH INTERVAL								
SSA-1 Lakes and Ponds								
SSA-1a E. Upper Derby	0	0	0		0	0	0	0
SSA-1b Upper Derby	0	0	0		0	0	0	0
SSA-1c Lower Derby	0	0	0		0	0	0	0
SSA-1d Rod and Gun Club	0	0	0		0	0	0	0
SSA-1e Lake Ladora	0	300,000	0	2	0	22,000	0	0
SSA-1f Lake Mary	0	0	0		0	0	0	0
SSA-2 Ditches and Overflow Basin								
SSA-2a Process Water Ditch System	0	0	0		0	0	0	0
SSA-2b Sand Creek Lateral	0	0	0		0	0	0	0
SSA-2c Overflow Basin and Ditch	0	0	0		0	0	0	0
SSA-3 Buried Lake Sediments								
SSA-3a Lake Ladora Sediments	0	0	0		0	0	0	0
SSA-3b Derby Lakes Sediments	0	0	0		0	0	0	0
SSA-4 Trash Dump	0	0	0		0	0	0	0
SSA-5 Balance of Areas Investigated								
SSA-5a Isolated Detections	0	0	0		0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0		0	0	0	0
SSA-5c Isolated Detections	0	0	0		0	0	0	0
SSA-5d Isolated Detections	0	0	0		0	0	0	0
SSA-5e Uvalda Ditch	0	0	0		0	0	0	0
DEPTH INTERVAL TOTALS								
	0	300,000	0		0	22,000	0	0

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Microgram/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-2. Areas and Volumes of Potentially Contaminated Soil and Sediment for Methylene Chloride. Page 2 of 2.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	1-10	10-100	>100	CRL-1	1-10	10-100	>100
2-5 FT. DEPTH INTERVAL								
SSA-1 Lakes and Ponds								
SSA-1a E. Upper Derby	0	0	0	0	0	0	0	0
SSA-1b Upper Derby	0	0	0	0	0	0	0	0
SSA-1c Lower Derby	0	0	0	0	0	0	0	0
SSA-1d Rod and Gun Club	0	0	0	0	0	0	0	0
SSA-1e Lake Ladora	0	210,000	0	0	0	23,000	0	0
SSA-1f Lake Mary	0	0	0	0	0	0	0	0
SSA-2 Ditches and Overflow Basin								
SSA-2a Process Water Ditch System	0	0	0	0	0	0	0	0
SSA-2b Sand Creek Lateral	0	0	0	0	0	0	0	0
SSA-2c Overflow Basin and Ditch	0	32,000	0	0	0	3,600	0	0
SSA-3 Buried Lake Sediments								
SSA-3a Lake Ladora Sediments	0	0	0	0	0	0	0	0
SSA-3b Derby Lakes Sediments	0	0	0	0	0	0	0	0
SSA-4 Trash Dump	0	0	0	0	0	0	0	0
SSA-5 Balance of Areas Investigated								
SSA-5a Isolated Detections	0	0	0	0	0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0	0	0	0	0	0
SSA-5c Isolated Detections	0	0	0	0	0	0	0	0
SSA-5d Isolated Detections	0	0	0	0	0	0	0	0
SSA-5e Uvalde Ditch	0	0	0	0	0	0	0	0
DEPTH INTERVAL TOTALS	0	240,000	0	0	0	27,000	0	0

5-20 FT. DEPTH INTERVAL - NO DETECTIONS ABOVE CRL

TOTAL VOLUME OF POTENTIALLY CONTAMINATED SOIL FOR METHYLENE CHLORIDE = 49,000 yd^3 .

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-3. Areas and Volumes of Potentially Contaminated Soil and Sediment for Dibromochloropropane. Page 1 of 2.

DEPTH INTERVAL AND SITE	Area (sq. ft.)			by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3)			by Concentration $\mu\text{g/g}$		
	CRL-1	1-10	>100	10-100	>100	CRL-1		1-10	10-100	>100			
9-2 FT DEPTH INTERVAL													
SSA-1 Lakes and Ponds													
SSA-1a E. Upper Derby	0	0	0	0	0			0	0	0	0	0	
SSA-1b Upper Derby	0	0	0	0	0			0	0	0	0	0	
SSA-1c Lower Derby	2,100,000	0	0	0	0	2	160,000	0	0	0	0	0	
SSA-1d Rod and Gun Club	0	0	0	0	0		0	0	0	0	0	0	
SSA-1e Lake Ladora	57,000	0	0	0	0	2	4,200	0	0	0	0	0	
SSA-1f Lake Mary	0	0	0	0	0		0	0	0	0	0	0	
SSA-2 Ditches and Overflow Basin													
SSA-2a Process Water Ditch System	0	0	0	0	0		0	0	0	0	0	0	
SSA-2b Sand Creek Lateral	0	0	0	0	0		0	0	0	0	0	0	
SSA-2c Overflow Basin and Ditch	0	0	0	0	0		0	0	0	0	0	0	
SSA-3 Buried Lake Sediments													
SSA-3a Lake Ladora Sediments	0	0	0	0	0			0	0	0	0	0	
SSA-3b Derby Lakes Sediments	126,000	0	0	0	0	2	9,300	0	0	0	0	0	
SSA-4 Trash Dump													
SSA-4 Trash Dump	0	0	0	0	0		0	0	0	0	0	0	
SSA-5 Isolation of Areas Investigated													
SSA-5a Isolated Detections	310	0	0	0	0	2	23	0	0	0	0	0	
SSA-5b Havana/Peoria Streets Ponds	0	0	0	0	0		0	0	0	0	0	0	
SSA-5c Isolated Detections	0	0	0	0	0		0	0	0	0	0	0	
SSA-5d Isolated Detections	0	0	0	0	0		0	0	0	0	0	0	
SSA-5e Uvalde Ditch	54,000	0	0	0	0	2	4,000	0	0	0	0	0	
DEPTH INTERVAL TOTALS													
	2,300,000	0	0	0	0		180,000	0	0	0	0	0	

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Microgram/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-3. Areas and Volumes of Potentially Contaminated Soil and Sediment for Dibromochloropropane. Page 2 of 2.

DEPTH INTERVAL AND SITE	Area (sq. ft.)		by Concentration $\mu\text{g/g}$			Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	1-10	10-100	>100	Thickness (ft)	CRL-1	1-10	10-100	>100
2-5 FT DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	0	0	0	0		0	0	0	0
SSA-1b Upper Derby	0	0	0	0		0	0	0	0
SSA-1c Lower Derby	580,000	0	0	0	3	64,000	0	0	0
SSA-1d Rod and Gun Club	0	0	0	0		0	0	0	0
SSA-1e Lake Ladora	57,000	0	0	0	3	6,300	0	0	0
SSA-1f Lake Mary	0	0	0	0		0	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	0	0	0	0		0	0	0	0
SSA-2b Sand Creek Lateral	0	0	0	0		0	0	0	0
SSA-2c Overflow Basin and Ditch	0	0	0	0		0	0	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladora Sediments	0	0	0	0		0	0	0	0
SSA-3b Derby Lakes Sediments	0	0	0	0		0	0	0	0
SSA-4 Trash Dump									
SSA-4	0	0	0	0		0	0	0	0
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	310	0	0	0	3	34	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0	0		0	0	0	0
SSA-5c Isolated Detections	0	0	0	0		0	0	0	0
SSA-5d Isolated Detections	0	0	0	0		0	0	0	0
SSA-5e Uvalde Ditch	0	0	0	0		0	0	0	0
DEPTH INTERVAL TOTALS									
	640,000	0	0	0		70,000	0	0	0

2-20 FT DEPTH INTERVAL - NO DETECTIONS ABOVE CRL

TOTAL VOLUME OF POTENTIALLY CONTAMINATED SOIL FOR DIBROMOCHLOROPROPANE = 250,000 yd^3 .

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-4. Areas and Volumes of Potentially Contaminated Soil and Sediment for Semivolatile Halogenated Organics. Page 1 of 2.

DEPTH INTERVAL AND SITE	Area (sq. ft.)		by Concentration $\mu\text{g/g}$				Thickness (ft)		Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	1-10	10-100	>100					CRL-1	1-10	10-100	>100
0-2 FT. DEPTH INTERVAL												
SSA-1 Lakes and Ponds												
SSA-1a E. Upper Derby	0	0	0	0			2		0	0	0	0
SSA-1b Upper Derby	180,000	0	0	0					13,000	0	0	0
SSA-1c Lower Derby	0	0	0	0					0	0	0	0
SSA-1d Rod and Gun Club	0	0	0	0					0	0	0	0
SSA-1e Lake Ladora	0	0	0	0					0	0	0	0
SSA-1f Lake Mary	0	0	0	0					0	0	0	0
SSA-2 Ditches and Overflow Basin												
SSA-2a Process Water Ditch System	0	0	0	0					0	0	0	0
SSA-2b Sand Creek Lateral	150,000	0	0	0			2		11,000	0	0	0
SSA-2c Overflow Resin and Ditch	0	0	0	0					0	0	0	0
SSA-3 Buried Lake Sediments												
SSA-3a Lake Ladora Sediments	0	0	0	0					0	0	0	0
SSA-3b Derby Lakes Sediments	0	0	0	0					0	0	0	0
SSA-4 Trash Dump												
SSA-4	75,000	0	0	0			2		5,600	0	0	0
SSA-5 Balance of Areas Investigated												
SSA-5a Isolated Detections	0	0	0	0					0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0	0					0	0	0	0
SSA-5c Isolated Detections	0	0	0	0					0	0	0	0
SSA-5d Isolated Detections	0	0	0	0					0	0	0	0
SSA-5e Uvalde Ditch	0	0	0	0					0	0	0	0
DEPTH INTERVAL TOTALS	410,000	0	0	0					30,000	0	0	0

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-4. Areas and Volumes of Potentially Contaminated Soil and Sediment for Semivolatile Halogenated Organics. Page 2 of 2.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$				
	CRL-1	1-10	10-100		>100	CRL-1	1-10	10-100	>100
2-5 FT DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	0	0	0		0	0	0	0	
SSA-1b Upper Derby	38,000	0	0	3	4,200	0	0	0	
SSA-1c Lower Derby	0	0	0		0	0	0	0	
SSA-1d Rod and Gun Club	0	0	0		0	0	0	0	
SSA-1e Lake Ladora	0	0	0		0	0	0	0	
SSA-1f Lake Mary	0	0	0		0	0	0	0	
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	0	0	0		0	0	0	0	
SSA-2b Sand Creek Lateral	0	0	0		0	0	0	0	
SSA-2c Overflow Basin and Ditch	0	0	0		0	0	0	0	
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladora Sediments	0	0	0		0	0	0	0	
SSA-3b Derby Lakes Sediments	7,800	0	0	3	870	0	0	0	
SSA-4 Trash Dump	310	0	0	3	34	0	0	0	
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	0	0	0		0	0	0	0	
SSA-5b Havana/Petoria Streets Ponds	0	0	0		0	0	0	0	
SSA-5c Isolated Detections	0	0	0		0	0	0	0	
SSA-5d Isolated Detections	0	0	0		0	0	0	0	
SSA-5e Uvalda Ditch	0	0	0		0	0	0	0	

5-20 FT DEPTH INTERVAL - NO DETECTIONS ABOVE CRL

TOTAL VOLUME OF POTENTIALLY CONTAMINATED SOIL FOR SEMIVOLATILE HALOGENATED ORGANICS = 35,000 yd^3 .

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-5. Areas and Volumes of Potentially Contaminated Soil and Sediment for Organochlorine Pesticides (Aldrin, Dieldrin, Endrin, Iodrin). Page 1 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.)			by Concentration $\mu\text{g/g}$			Volume (yd^3) by Concentration $\mu\text{g/g}$		
	CRL-1	1-10	10-100	>100	Thickness (ft)	CRL-1	1-10	10-100	>100
0-2 FT. DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	300,000	0	0	0	2	22,000	0	0	0
SSA-1b Upper Derby	1,500,000	130,000	7,900	0	2	110,000	9,600	590	0
SSA-1c Lower Derby	1,800,000	0	31,000	0	2	130,000	0	2,300	0
SSA-1d Rod and Gun Club	49,000	0	0	0	2	3,600	0	0	0
SSA-1e Lake Ladora	100,000	27,000	0	0	2	7,400	2,000	0	0
SSA-1f Lake Mary	20,000	0	0	0	2	1,500	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	22,000	27,000	14,000	0	2	1,600	2,000	1,000	0
SSA-2b Sand Creek Lateral	0	100,000	40,000	120,000	2	0	7,400	3,000	8,900
SSA-2c Overflow Basin and Ditch	120,000	0	0	0	2	8,900	0	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladora Sediments	0	0	0	0		0	0	0	0
SSA-3b Derby Lakes Sediments	310,000	0	0	0	2	23,000	0	0	0
SSA-4 Trash Dump	11,000	11,000	22,000	44,000	2	810	810	1,600	3,300
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	0	0	0	0		0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0	0		0	0	0	0
SSA-5c Isolated Detections	0	0	0	0		0	0	0	0
SSA-5d Isolated Detections	0	0	0	0		0	0	0	0
SSA-5e Uvalde Ditch	0	0	0	0		0	0	0	0
DEPTH INTERVAL TOTALS	4,200,000	300,000	110,000	160,000		310,000	22,000	8,500	12,000

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-5. Areas and Volumes of Potentially Contaminated Soil and Sediment for Organochlorine Pesticides (Aldrin, Dieldrin, Endrin, Isodrin). Page 2 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.)		by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	1-10	10-100	>100	CRL-1		1-10	10-100	>100	
2-5 FT. DEPTH INTERVAL										
SSA-1 Lakes and Ponds										
SSA-1a E. Upper Derby	0	0	0	0	0		0	0	0	0
SSA-1b Upper Derby	260,000	0	16,000			3	29,000	0	1,800	0
SSA-1c Lower Derby	500,000	0	0			3	56,000	0	0	0
SSA-1d Rod and Gun Club	0	0	0				0	0	0	0
SSA-1e Lake Ladora	0	0	0				0	0	0	0
SSA-1f Lake Mary	0	0	0				0	0	0	0
SSA-2 Ditches and Overflow Basin										
SSA-2a Process Water Ditch System	35,000	0	0			3	3,900	0	0	0
SSA-2b Sand Creek Lateral	80,000	0	0			3	8,900	0	0	0
SSA-2c Overflow Basin and Ditch	18,000	0	0			3	2,000	0	0	0
SSA-3 Buried Lake Sediments										
SSA-3a Lake Ladora Sediments	0	0	0				0	0	0	0
SSA-3b Derby Lakes Sediments	89,000	40,000	0			3	9,900	4,400	0	0
SSA-4 Trash Dump	0	0	0				0	0	0	0
SSA-5 Balance of Areas Investigated										
SSA-5a Isolated Detections	0	0	0				0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0				0	0	0	0
SSA-5c Isolated Detections	0	0	0				0	0	0	0
SSA-5d Isolated Detections	0	0	0				0	0	0	0
SSA-5e Uvalda Ditch	0	0	0				0	0	0	0
DEPTH INTERVAL TOTALS										
	980,000	40,000	16,000	0			110,000	4,400	1,800	0

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-5. Areas and Volumes of Potentially Contaminated Soil and Sediment for Organochlorine Pesticides (Aldrin, Dieldrin, Endrin, Isodrin). Page 3 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	1-10	10-100	>100	CRL-1	1-10	10-100	>100
5-20 FT DEPTH INTERVAL								
SSA-1 Lakes and Ponds								
SSA-1a E. Upper Derby	0	0	0	0	0	0	0	0
SSA-1b Upper Derby	0	0	0	0	0	0	0	0
SSA-1c Lower Derby	0	0	0	0	0	0	0	0
SSA-1d Rod and Gun Club	0	0	0	0	0	0	0	0
SSA-1e Lake Ladora	0	0	0	0	0	0	0	0
SSA-1f Lake Mary	0	0	0	0	0	0	0	0
SSA-2 Ditches and Overflow Basin								
SSA-2a Process Water Ditch System	110,000	0	0	0	20,000	0	0	0
SSA-2b Sand Creek Lateral	160,000	0	0	5-10	49,000	0	0	0
SSA-2c Overflow Basin and Ditch	0	0	0	0	0	0	0	0
SSA-3 Buried Lake Sediments								
SSA-3a Lake Ladora Sediments	0	0	0	0	0	0	0	0
SSA-3b Derby Lakes Sediments	140,000	24,000	71,000	5	26,000	4,400	13,000	0
SSA-4 Trash Dump	31,000	0	0	5	5,700	0	0	0
SSA-5 Balance of Areas Investigated								
SSA-5a Isolated Detections	0	0	0	0	0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0	0	0	0	0	0
SSA-5c Isolated Detections	0	0	0	0	0	0	0	0
SSA-5d Isolated Detections	0	0	0	0	0	0	0	0
SSA-5e Uvalde Ditch	0	0	0	0	0	0	0	0
DEPTH INTERVAL TOTALS	440,000	24,000	71,000	0	100,000	4,400	13,000	0
TOTAL VOLUME OF POTENTIALLY CONTAMINATED SOIL FOR ORGANOCHLORINE PESTICIDES (ALDRIN, DIELDRIN, ENDRIN, ISODRIN) = 590,000 yd^3.								

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-6. Areas and Volumes of Potentially Contaminated Soil and Sediment for Organochlorine Pesticides (DDE, DDT, Chlordane). Page 1 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	1-10	10-100	>100	CRL-1	1-10	10-100	>100
0-2 FT DEPTH INTERVAL								
SSA-1 Lakes and Ponds								
SSA-1a E. Upper Derby	0	0	0	0	0	0	0	0
SSA-1b Upper Derby	880,000	0	0	0	65,000	0	0	0
SSA-1c Lower Derby	1,200,000	0	7,500	0	89,000	0	560	0
SSA-1d Rod and Gun Club	0	0	0	0	0	0	0	0
SSA-1e Lake Ladora	350,000	0	0	0	26,000	0	0	0
SSA-1f Lake Mary	210,000	0	0	0	16,000	0	0	0
SSA-2 Ditches and Overflow Basin								
SSA-2a Process Water Ditch System	14,000	0	0	0	1,000	0	0	0
SSA-2b Sand Creek Lateral	120,000	140,000	0	0	8,900	10,000	0	0
SSA-2c Overflow Basin and Ditch	19,000	9,200	0	0	1,400	680	0	0
SSA-3 Buried Lake Sediments								
SSA-3a Lake Ladora Sediments	0	0	0	0	0	0	0	0
SSA-3b Derby Lakes Sediments	49,000	0	0	0	3,600	0	0	0
SSA-4 Trash Dump	15,000	15,000	0	310	1,100	1,100	0	23
SSA-5 Balance of Areas Investigated								
SSA-5a Isolated Detections	0	0	0	0	0	0	0	0
SSA-5b Havana/Pecora Streets Ponds	0	310	0	0	0	23	0	0
SSA-5c Isolated Detections	0	0	0	0	0	0	0	0
SSA-5d Isolated Detections	0	0	0	0	0	0	0	0
SSA-5e Uvalde Ditch	0	0	0	0	0	0	0	0
DEPTH INTERVAL TOTALS	2,900,000	160,000	7,500	310	210,000	12,000	560	23

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Microgram/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-6. Areas and Volumes of Potentially Contaminated Soil and Sediment for Organochlorine Pesticides (DDE, DDT, Chlordane). Page 2 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration µg/g			Thickness (ft)	Volume (yd ³) by Concentration µg/g			
	CRL-1	1-10	10-100		>100	CRL-1	1-10	10-100
2-5 FT. DEPTH INTERVAL								
SSA-1 Lakes and Ponds								
SSA-1a E. Upper Derby	0	0	0		0	0	0	0
SSA-1b Upper Derby	150,000	20,000	0	3	17,000	2,200	0	0
SSA-1c Lower Derby	250,000	0	0	3	28,000	0	0	0
SSA-1d Rod and Gun Club	0	0	0		0	0	0	0
SSA-1e Lake Ladora	0	0	0		0	0	0	0
SSA-1f Lake Mary	0	0	0		0	0	0	0
SSA-2 Ditches and Overflow Basin								
SSA-2a Process Water Ditch System	45,000	0	0	3	5,000	0	0	0
SSA-2b Sand Creek Lateral	80,000	0	0	3	8,900	0	0	0
SSA-2c Overflow Basin and Ditch	18,000	0	0	3	2,000	0	0	0
SSA-3 Buried Lake Sediments								
SSA-3a Lake Ladora Sediments	0	0	0		0	0	0	0
SSA-3b Derby Lakes Sediments	59,000	27,000	0	3	6,600	3,000	0	0
SSA-4 Trash Dump	310	0	0	3	34	0	0	0
SSA-5 Balance of Areas Investigated								
SSA-5a Isolated Detections	0	0	0		0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	310	0	3	0	34	0	0
SSA-5c Isolated Detections	0	0	0		0	0	0	0
SSA-5d Isolated Detections	0	0	0		0	0	0	0
SSA-5e Uvalda Ditch	0	0	0		0	0	0	0
DEPTH INTERVAL TOTALS								
	600,000	47,000	0		68,000	5,200	0	0

yd^3 = Cubic yards
 $\mu\text{R}/\text{g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-6. Areas and Volumes of Potentially Contaminated Soil and Sediment for Organochlorine Pesticides (DDE, DDT, Chlordane). Page 3 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$			Thickness (ft)		Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	1-10	10-100	>100		CRL-1	1-10	10-100	>100
5-20 FT DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	0	0	0	0		0	0	0	0
SSA-1b Upper Derby	0	0	0	0		0	0	0	0
SSA-1c Lower Derby	0	0	0	0		0	0	0	0
SSA-1d Rod and Gun Club	0	0	0	0		0	0	0	0
SSA-1e Lake Ladona	0	0	0	0		0	0	0	0
SSA-1f Lake Mary	0	0	0	0		0	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	0	0	0	0		0	0	0	0
SSA-2b Sand Creek Lateral	0	0	0	0		0	0	0	0
SSA-2c Overflow Basin and Ditch	0	0	0	0		0	0	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladona Sediments	0	0	0	0		0	0	0	0
SSA-3b Derby Lakes Sediments	60,000	22,000	0	0	5	11,000	4,100	0	0
SSA-4 Trash Dump	0	0	0	0		0	0	0	0
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	0	0	0	0		0	0	0	0
SSA-5b Havana/Peoria Streets Ponds	0	0	0	0		0	0	0	0
SSA-5c Isolated Detections	0	0	0	0		0	0	0	0
SSA-5d Isolated Detections	0	0	0	0		0	0	0	0
SSA-5e Uvalde Ditch	0	0	0	0		0	0	0	0
DEPTH INTERVAL TOTALS	60,000	22,000	0	0		11,000	4,100	0	0

TOTAL VOLUME OF POTENTIALLY CONTAMINATED SOIL FOR ORGANOCHLORINE PESTICIDES (PPDDE, PPDOT, CHLORDANE) = 310,000 yd^3 .

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-7. Areas and Volumes of Potentially Contaminated Soil and Sediment for Arsenic. Page 1 of 1.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$				
	CRL-10	10-100	100-1000		>1000	CRL-10	10-100	100-1000	>1000
2-2 FT DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	NA	75,000	0	0	2	NA	5,600	0	0
SSA-1b Upper Derby	NA	37,000	0	0	2	NA	2,700	0	0
SSA-1c Lower Derby	NA	0	0	0		NA	0	0	0
SSA-1d Rod and Gun Club	NA	0	0	0		NA	0	0	0
SSA-1e Lake Ladora	NA	110,000	0	0	2	NA	8,100	0	0
SSA-1f Lake Mary	NA	0	0	0		NA	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	NA	0	0	0		NA	0	0	0
SSA-2b Sand Creek Lateral	NA	0	0	0		NA	0	0	0
SSA-2c Overflow Basin and Ditch	NA	18,000	0	0	2	NA	1,300	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladora Sediments	NA	0	0	0		NA	0	0	0
SSA-3b Derby Lakes Sediments	NA	0	0	0		NA	0	0	0
SSA-4 Trash Dump	NA	0	0	0		NA	0	0	0
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	NA	0	0	0		NA	0	0	0
SSA-5b Havana/Peoria Streets Ponds	NA	0	0	0		NA	0	0	0
SSA-5c Isolated Detections	NA	0	0	0		NA	0	0	0
SSA-5d Isolated Detections	NA	0	0	0		NA	0	0	0
SSA-5e Uvalda Ditch	NA	0	0	0		NA	0	0	0
DEPTH INTERVAL TOTALS									
		240,000	0	0			18,000	0	0
2-5 FT DEPTH INTERVAL - NO DETECTIONS ABOVE INDICATOR RANGE									
5-20 FT DEPTH INTERVAL - NO DETECTIONS ABOVE INDICATOR RANGE									
TOTAL VOLUME OF POTENTIALLY CONTAMINATED SOIL FOR ARSENIC = 18,000 yd^3									

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-8. Areas and Volumes of Potentially Contaminated Soil and Sediment for Mercury. Page 1 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration µg/g			Thickness (ft)	Volume (yd ³) by Concentration µg/g		
	CRL-1	.1-1.0	1.0-10		CRL-1	.1-1.0	1.0-10
9-2 FT. DEPTH INTERVAL							
SSA-1 Lakes and Ponds							
SSA-1a E. Upper Derby	NA	0	0		NA	0	0
SSA-1b Upper Derby	NA	640,000	19,000	2	NA	47,000	1,400
SSA-1c Lower Derby	NA	1,500,000	100,000		NA	110,000	7,400
SSA-1d Rod and Gun Club	NA	0	0		NA	0	0
SSA-1e Lake Ladora	NA	1,400,000	200,000	2	NA	100,000	15,000
SSA-1f Lake Mary	NA	0	0		NA	0	0
SSA-2 Ditches and Overflow Basin							
SSA-2a Process Water Ditch System	NA	50,000	0	2	NA	3,700	0
SSA-2b Sand Creek Lateral	NA	120,000	0	2	NA	8,900	0
SSA-2c Overflow Basin and Ditch	NA	12,000	0	2	NA	890	0
SSA-3 Buried Lake Sediments							
SSA-3a Lake Ladora Sediments	NA	150,000	0	2	NA	11,000	0
SSA-3b Derby Lakes Sediments	NA	110,000	0	2	NA	8,100	0
SSA-4 Trash Dump	NA	0	310	2	NA	0	23
SSA-5 Balance of Areas Investigated							
SSA-5a Isolated Detections	NA	0	0		NA	0	0
SSA-5b Havana/Peoria Streets Ponds	NA	0	0		NA	0	0
SSA-5c Isolated Detections	NA	0	0		NA	0	0
SSA-5d Isolated Detections	NA	0	0		NA	0	0
SSA-5e Uvalda Ditch	NA	0	0		NA	0	0
DEPTH INTERVAL TOTALS							
	4,000,000	320,000	76,000		290,000	24,000	5,600

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-8. Areas and Volumes of Potentially Contaminated Soil and Sediment for Mercury. Page 2 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	.1-1.0	1.0-10		CRL-1	.1-1.0	1.0-10	>10
2-5 FT. DEPTH INTERVAL								
SSA-1 Lakes and Ponds								
SSA-1a E. Upper Derby	NA	0	0	0	NA	0	0	
SSA-1b Upper Derby	NA	310,000	0	3	NA	34,000	0	
SSA-1c Lower Derby	NA	500,000	170,000	3	NA	56,000	19,000	
SSA-1d Rod and Gun Club	NA	0	0	0	NA	0	0	
SSA-1e Lake Ladora	NA	7,800	0	3	NA	870	0	
SSA-1f Lake Mary	NA	0	0	0	NA	0	0	
SSA-2 Ditches and Overflow Basin								
SSA-2a Process Water Ditch System	NA	0	0	0	NA	0	0	
SSA-2b Sand Creek Lateral	NA	0	0	0	NA	0	0	
SSA-2c Overflow Basin and Ditch	NA	0	0	0	NA	0	0	
SSA-3 Buried Lake Sediments								
SSA-3a Lake Ladora Sediments	NA	97,000	0	3	NA	11,000	0	
SSA-3b Derby Lakes Sediments	NA	110,000	22,000	3	NA	12,000	2,400	
SSA-4 Trash Dump	NA	0	0	0	NA	0	0	
SSA-5 Balance of Areas Investigated								
SSA-5a Isolated Detections	NA	0	0	0	NA	0	0	
SSA-5b Havana/Peoria Streets Ponds	NA	0	0	0	NA	0	0	
SSA-5c Isolated Detections	NA	0	0	0	NA	0	0	
SSA-5d Isolated Detections	NA	0	0	0	NA	0	0	
SSA-5e Uvalda Ditch	NA	0	0	0	NA	0	0	
DEPTH INTERVAL TOTALS								
		1,000,000	190,000	0		110,000	21,000	0

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-8. Areas and Volumes of Potentially Contaminated Soil and Sediment for Mercury. Page 3 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$			Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$			
	CRL-1	.1-1.0	1.0-10		CRL-1	.1-1.0	1.0-10	>10
5-20 FT DEPTH INTERVAL								
SSA-1 Lakes and Ponds								
SSA-1a E. Upper Derby	NA	0	0	0	NA	0	0	0
SSA-1b Upper Derby	NA	0	0	0	NA	0	0	0
SSA-1c Lower Derby	NA	0	0	0	NA	0	0	0
SSA-1d Rod and Gun Club	NA	0	0	0	NA	0	0	0
SSA-1e Lake Ladora	NA	0	0	0	NA	0	0	0
SSA-1f Lake Mary	NA	0	0	0	NA	0	0	0
SSA-2 Ditches and Overflow Basin								
SSA-2a Process Water Ditch System	NA	8,000	0	5	NA	1,500	0	0
SSA-2b Sand Creek Lateral	NA	0	0	0	NA	0	0	0
SSA-2c Overflow Basin and Ditch	NA	0	0	0	NA	0	0	0
SSA-3 Buried Lake Sediments								
SSA-3a Lake Ladora Sediments	NA	140,000	0	5	NA	26,000	0	0
SSA-3b Derby Lakes Sediments	NA	100,000	100,000	5	NA	19,000	19,000	0
SSA-4 Trash Dump								
SSA-4	NA	0	0	0	NA	0	0	0
SSA-5 Balance of Areas Investigated								
SSA-5a Isolated Detections	NA	0	0	0	NA	0	0	0
SSA-5b Havana/Peoria Streets Ponds	NA	0	0	0	NA	0	0	0
SSA-5c Isolated Detections	NA	0	0	0	NA	0	0	0
SSA-5d Isolated Detections	NA	0	0	0	NA	0	0	0
SSA-5e Uvalda Ditch	NA	0	0	0	NA	0	0	0
DEPTH INTERVAL TOTALS								
		250,000	100,000	0		47,000	19,000	0
TOTAL VOLUME OF POTENTIALLY CONTAMINATED SOIL FOR MERCURY = 520,000 yd^3								

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Microgram/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-9. Areas and Volumes of Potentially Contaminated Soil and Sediment for ICP Metals. Page 1 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration µg/g				Thickness (ft)	Volume (yd ³) by Concentration µg/g			
	RANGE 1	RANGE 2	RANGE 3	RANGE 4		RANGE 1	RANGE 2	RANGE 3	RANGE 4
9-2 FT. DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	NA	0	0	0		NA	0	0	0
SSA-1b Upper Derby	NA	250,000	0	0	2	NA	19,000	0	0
SSA-1c Lower Derby	NA	340,000	60,000	0	2	NA	22,000	4,400	0
SSA-1d Rod and Gun Club	NA	0	0	0		NA	0	0	0
SSA-1e Lake Ladara	NA	460,000	0	0	2	NA	34,000	0	0
SSA-1f Lake Mary	NA	0	0	0		NA	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	NA	0	0	0		NA	0	0	0
SSA-2b Sand Creek Lateral	NA	0	96,000	0	2	NA	0	7,100	0
SSA-2c Overflow Basin and Ditch	NA	0	0	0		NA	0	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladara Sediments	NA	0	0	0		NA	0	0	0
SSA-3b Derby Lakes Sediments	NA	0	0	0		NA	0	0	0
SSA-4 Trash Dump									
SSA-4 Trash Dump	NA	0	0	0		NA	0	0	0
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	NA	0	0	0	2	NA	0	0	0
SSA-5b Havana/Peoria Streets Ponds	NA	0	0	0		NA	0	0	0
SSA-5c Isolated Detections	NA	310	0	0	2	NA	23	0	0
SSA-5d Isolated Detections	NA	0	310	0		NA	0	23	0
SSA-5e Uvalde Ditch	NA	48,000	0	0	2	NA	3,600	0	0
DEPTH INTERVAL TOTALS									
	1,100,000	160,000	160,000	0		79,000	12,000	0	0

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Microgram/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-9. Areas and Volumes of Potentially Contaminated Soil and Sediment for ICP Metals. Page 2 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$				Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$			
	RANGE 1	RANGE 2	RANGE 3	RANGE 4		RANGE 1	RANGE 2	RANGE 3	RANGE 4
2-5 FT. DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	NA	0	0	0		NA	0	0	0
SSA-1b Upper Derby	NA	0	0	0		NA	0	0	0
SSA-1c Lower Derby	NA	230,000	0	0	3	NA	26,000	0	0
SSA-1d Rod and Gun Club	NA	0	0	0		NA	0	0	0
SSA-1e Lake Ladora	NA	49,000	0	0	3	NA	5,400	0	0
SSA-1f Lake Mary	NA	0	0	0		NA	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	NA	9,000	0	0	3	NA	1,000	0	0
SSA-2b Sand Creek Lateral	NA	110,000	0	0	3	NA	12,000	0	0
SSA-2c Overflow Basin and Ditch	NA	0	0	0		NA	0	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Ladora Sediments	NA	0	0	0		NA	0	0	0
SSA-3b Derby Lakes Sediments	NA	0	0	0		NA	0	0	0
SSA-4 Trash Dump									
SSA-4	NA	0	0	0		NA	0	0	0
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	NA	0	0	0		NA	0	0	0
SSA-5b Havana/Perris Streets Ponds	NA	0	0	0		NA	0	0	0
SSA-5c Isolated Detections	NA	310	0	0	3	NA	34	0	0
SSA-5d Isolated Detections	NA	0	310	0	3	NA	0	34	0
SSA-5e Uvalda Ditch	NA	0	0	0		NA	0	0	0
DEPTH INTERVAL TOTALS									
	400,000	310	0	0		44,000	34	0	0

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Micrograms/gram
 CRL = Certified Reporting Limits

Table SSA 3.4-9. Areas and Volumes of Potentially Contaminated Soil and Sediment for ICP Metals. Page 3 of 3.

DEPTH INTERVAL AND SITE	Area (sq. ft.) by Concentration $\mu\text{g/g}$				Thickness (ft)	Volume (yd^3) by Concentration $\mu\text{g/g}$			
	RANGE 1	RANGE 2	RANGE 3	RANGE 4		RANGE 1	RANGE 2	RANGE 3	RANGE 4
5-20 FT DEPTH INTERVAL									
SSA-1 Lakes and Ponds									
SSA-1a E. Upper Derby	NA	0	0	0		NA	0	0	0
SSA-1b Upper Derby	NA	0	0	0		NA	0	0	0
SSA-1c Lower Derby	NA	0	0	0		NA	0	0	0
SSA-1d Rod and Gun Club	NA	0	0	0		NA	0	0	0
SSA-1e Lake Labara	NA	0	0	0		NA	0	0	0
SSA-1f Lake Mary	NA	0	0	0		NA	0	0	0
SSA-2 Ditches and Overflow Basin									
SSA-2a Process Water Ditch System	NA	0	0	0		NA	0	0	0
SSA-2b Sand Creek Lateral	NA	7,900	0	0	5	NA	1,500	0	0
SSA-2c Overflow Basin and Ditch	NA	0	0	0		NA	0	0	0
SSA-3 Buried Lake Sediments									
SSA-3a Lake Labara Sediments	NA	0	210,000	0	5	NA	0	39,000	0
SSA-3b Derby Lakes Sediments	NA	0	0	0		NA	0	0	0
SSA-4 Trash Dump									
SSA-4	NA	0	0	0		NA	0	0	0
SSA-5 Balance of Areas Investigated									
SSA-5a Isolated Detections	NA	0	0	0		NA	0	0	0
SSA-5b Havana/Pooris Streets Ponds	NA	0	0	0		NA	0	0	0
SSA-5c Isolated Detections	NA	0	0	0		NA	0	0	0
SSA-5d Isolated Detections	NA	0	0	0		NA	0	0	0
SSA-5e Uvalda Ditch	NA	0	0	0		NA	0	0	0
DEPTH INTERVAL TOTALS									
	7,900	210,000	0	0		1,500	39,000	0	0
TOTAL VOLUME OF POTENTIALLY CONTAMINATED SOIL FOR ICP METALS = 180,000 yd^3 .									

yd^3 = Cubic yards
 $\mu\text{g/g}$ = Microgram/gram
 CRL = Certified Reporting Limits